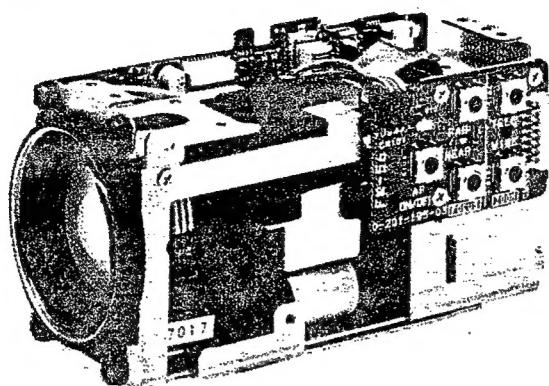


EVI-310/311

---

SERVICE MANUAL



EVI-310 NTSC  
EVI-311 PAL

---

COLOR CAMERA BLOCK  
**SONY®**

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## 1. GENERAL

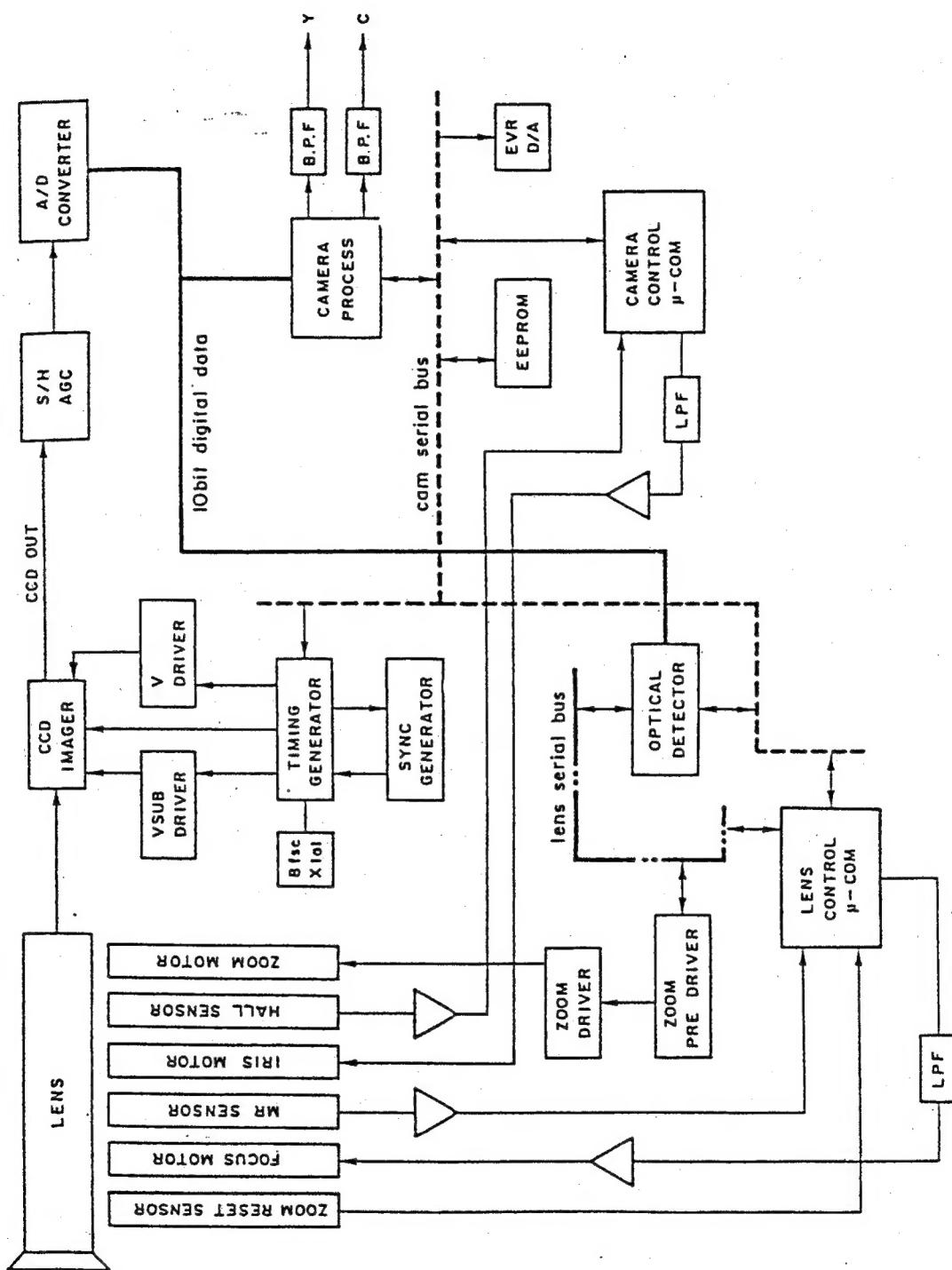
### 1. Summary

EVI-310 (NTSC) / EVI-311 (PAL) is a super compact color CCD camera block with 8 times zoom, high speed auto focus lens installed. A 1/3 inch, 380,000/440,000 pixels CCD is used and more than 460 TV lines, high resolution is achieved. Not only controlling zoom and focus but also auto tracing, one push, pre-set white balance are selectable and 17 steps iris, 28 speeds of electronic shutter, and 8 steps of brightness are possible to set by each. Owing to the Bright Control and Exposure Compensation function, various adjustments of brightness is offerable. Furthermore, it is possible to pre-set 6 different camera conditions in advance using Position Pre-set function. EVI-310/311 uses DSP (Digital Signal Processor) that enables digital controlling of each camera functions. Composite and Y/C outputs are available.

### 2. Specification

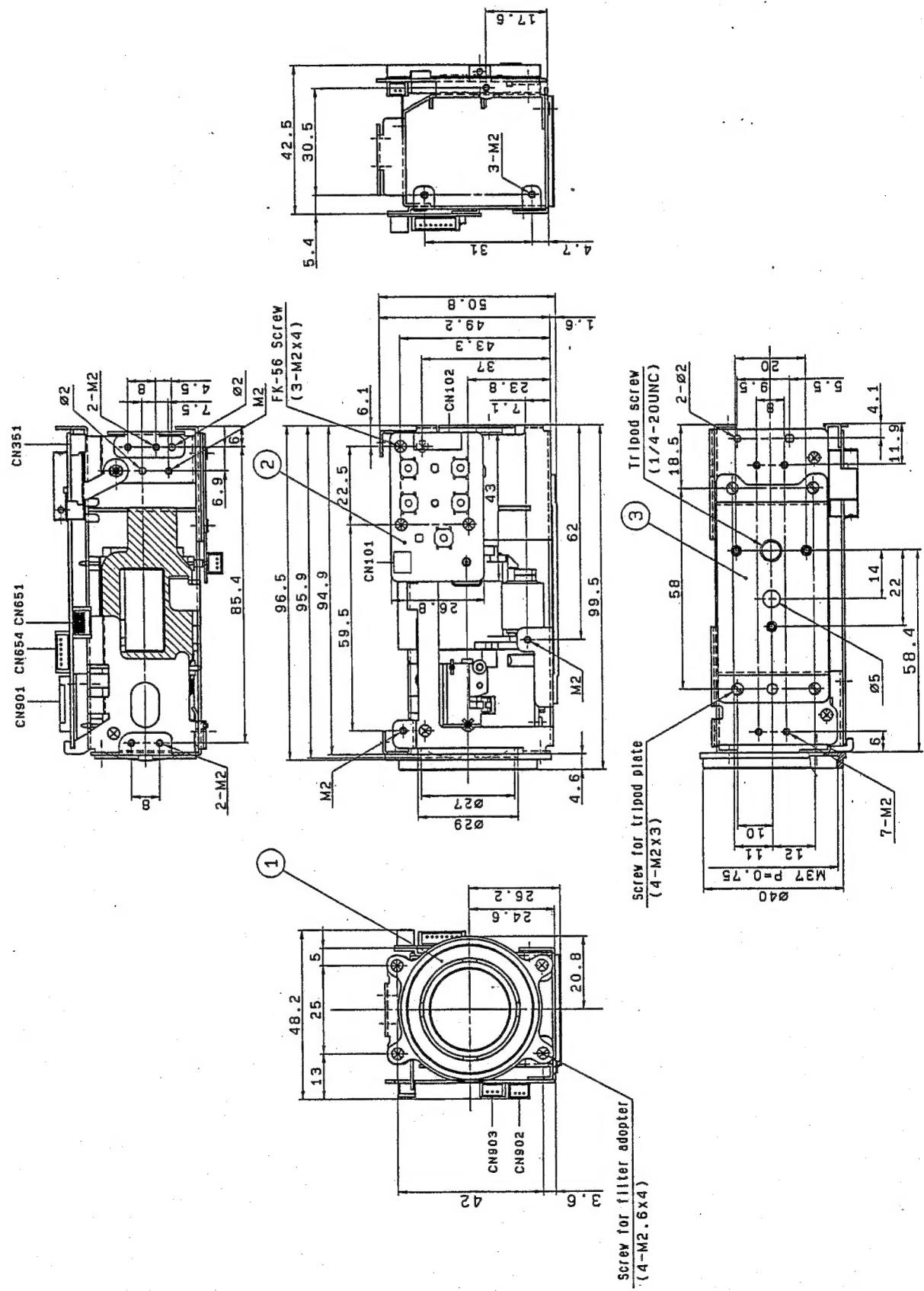
	EVI-310 (NTSC)	EVI-311 (PAL)
Image Sensor	1/3" IT CCD	
Picture Elements	768 (H) × 494 (V)	752 (H) × 582 (V)
H. Resolution (Center)	more than 460TV lines	more than 450TV lines
V. Resolution (Center)	more than 350TV lines	more than 400TV lines
Lens	8x Zoom f=5.9 to 47.2mm F1.4 Wide Macro Auto Focus (Inner Focus System)	
Angle of View (H) (V)	approx. 44.3° (wide end) to 5.8° (tele end) approx. 34.9° (wide end) to 4.4° (tele end)	
Lens constructure	9 elements in 6 groups (including 2 aspherical lenses)	
Shortest Subject Dist.	10mm (wide end) : 900mm (tele end)	
Video Out (75Ω Terminated)	Y:VS1.0Vp-p Sync negative C: Burst 0.286Vp-p VBS:1.0Vp-p Composite	Y:VS1.0Vp-p Sync negative C: Burst 0.300Vp-p VBS:1.0Vp-p Composite
Min. Illumination	6Lux F1.4 (more than 50IRE)	
S/N Ratio	more than 46dB	
White Balance	TTL Auto tracing, One push Hold, Indoor Preset, Outdoor Preset	
Electronic Shutter	28 speeds (up to 1/10000sec.)	28 speeds (up to 1/10000sec.)
Flickerless	Auto	
Operating Temperature	0°C to 50°C	
Storage Temperature	-10°C to 60°C	
Operating Humidity	30% to 80%	
Storage Humidity	20% to 90%	
Power Requirements	DC6 to 9V (2.8W)	
Dimensions(W/H/D)	49 × 51 × 100 mm	
Weight	210g	
Spurious radiation	FCC class A	
Supplied accessory	2P harness, 3P harness, 6P harness, 20P flexible cable	

### 3. Block Diagram

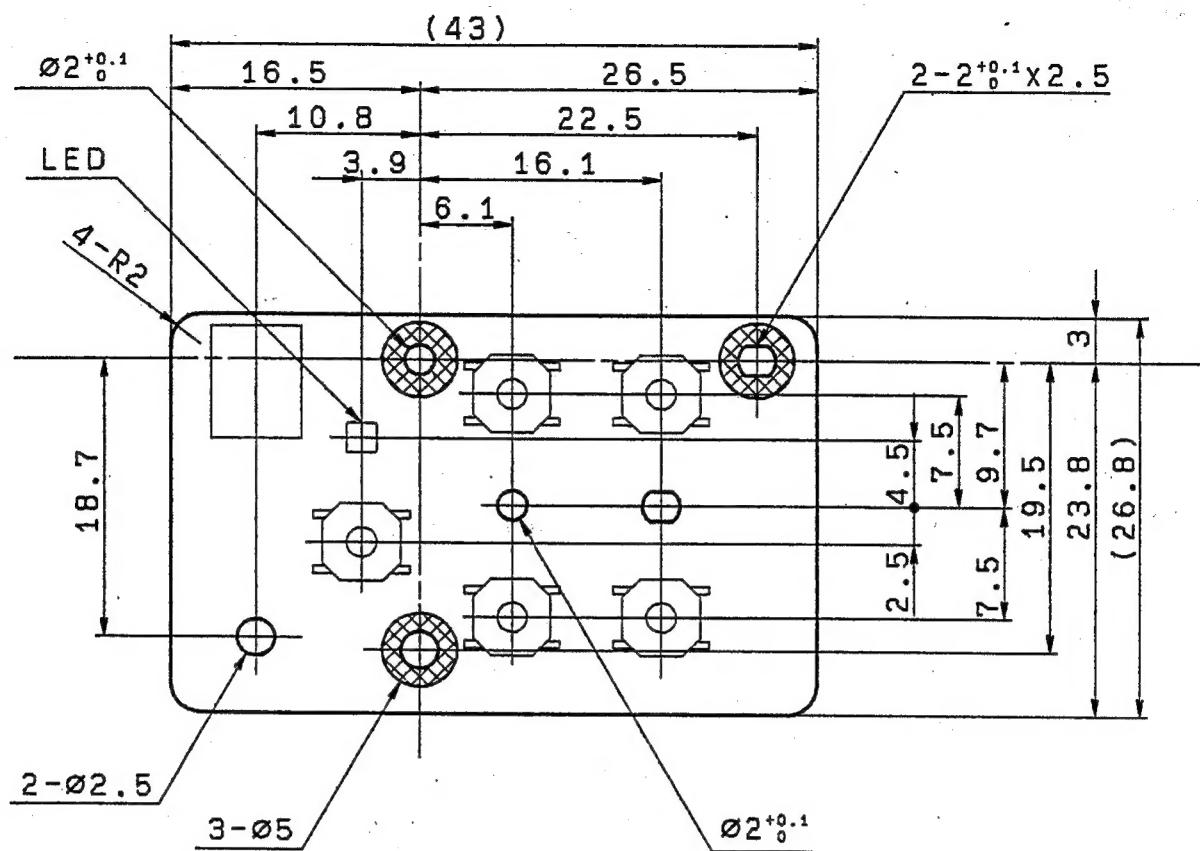


#### 4. Dimension

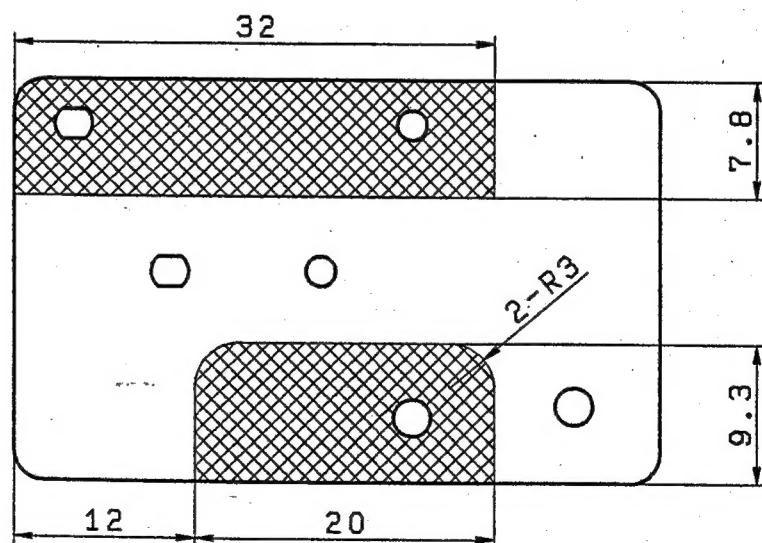
EVI-310/311



A



B



## 5. Input/Output Terminals

EVI-310/311

◇ CN902:3P Connect with FK-56 Board (CN101), For lens control

- |               |  |
|---------------|--|
| 1. ZOOM/FOCUS | on board connector: SMK CGP4703-0110             |
| 2. GND        | supplied connectors housing: SMK CGP1203-0101    |
| 3. AF ON LED  | supplied connectors receptacle: SMK CTA1126-0101 |

◇ CN654:6P For Video Outputs

- |            |                               |
|------------|-------------------------------|
| 1. GND     | on board: JST S6B-ZR-SM3A-TF  |
| 2. C OUT   | housing: JST ZHR-6            |
| 3. GND     | receptacle: JST SZH-003T-P0.5 |
| 4. Y OUT   |                               |
| 5. GND     |                               |
| 6. VBS OUT |                               |

◇ CN903:3P For ECCP and remote-controller (RM-95)

- |                      |                               |
|----------------------|-------------------------------|
| 1. ECCP DC/UNREG OUT | on board: JST S3B-ZR-SM3A-TF  |
| 2. ECCP SIG IN/OUT   | housing: JST ZHR-3            |
| 3. GND               | receptacle: JST SZH-003T-P0.5 |

◇ CN351:2P For power supply

- |                    |                               |
|--------------------|-------------------------------|
| 1. DC IN (6 to 9V) | on board: JST S2B-ZR-SM3-TF   |
| 2. GND             | housing: JST ZHR-2            |
|                    | receptacle: JST SZH-003T-P0.5 |

※ CN651 and CN653 are for SONY factory adjustment.

◇ CN901:20P For extra circuit

ELCO 00 6212 020 010 800

- |                  |                     |
|------------------|---------------------|
| 1. POSITION SW A | 11. IN DOOR LED     |
| 2. POSITION SW B | 12. OUT DOOR LED    |
| 3. PRE/RST AWB   | 13. AE LED          |
| 4. AE CONT       | 14. KEY LOCK LED    |
| 5. PO 1 LED      | 15. AWB LED         |
| 6. PO 2 LED      | 16. ONE PUSH WB LED |
| 7. PO 3 LED      | 17. BACK LIGHT      |
| 8. PO 4 LED      | 18. BRIGHT          |
| 9. PO 5 LED      | 19. D5V             |
| 10. PO 6 LED     | 20. GND             |

## FK-56 BOARD

FK-56 Board is mounted at the side of the EVI-310/311 when it is delivered.  
They are connected by 3P-3P harness.

### ◇ CN101:3P For connecting with EVI-310/311 (CN903)

- |                  |  |
|------------------|--|
| 1. ZOOM/FOCUS SW | on board connector: SMK CGP4703-0110             |
| 2. GND           | supplied connectors housing: SMK CGP1203-0101    |
| 3. AF ON LED     | supplied connectors receptacle: SMK CTA1126-0101 |

### ◇ CN102:7P For controlling zoom and focus

- |               |                |
|---------------|----------------|
| 1. ZOOM WIDE  | JST            |
| 2. ZOOM TELE  | S7B-ZR-SM3A-TF |
| 3. AF ON/OFF  |                |
| 4. FOCUS NEAR |                |
| 5. FOCUS FAR  |                |
| 6. GND        |                |
| 7. NC         |                |

## 6. Functions

EVI-310/311 offers the following functions. For the details to control each function, please refer to Section 7 and 8.

### Zoom

Owing to a high speed stepping motor as a zoom motor, the fastest 1.5 sec. zooming is achieved from tele end (47.2mm max.) to wide end (5.9mm max.) with 8 times zoom. Tele/wide manual control is available.

### Focus

EVI-310/311 uses Inner focus system that gives a quick and stable tracking. By detecting high frequency elements from the video signal, it focuses to the subject with much brightness and contrast in the measuring area of the center screen. Auto focus is available 1cm close-up from the lens front (in case of wide end) to infinite. The closer to be Tele side, the longer the minimum focus distance will be. When in tele end, it is focusable from 90 cm from the lens front.

For the following functions, controlling the functions with an additional circuit, ECCP, RS232C is necessary. When the following functions are not used, the first settings (factory settings) are auto white balance, 1/60 sec. shutter speed, auto iris, and AGC.

### White balance

#### ◇ Auto White Balance

TTL Auto Tracing White Balance System is used that gives a faithful color reproduction to the subject by calculating the color information of the whole screen. To prevent the subject from being all white by operating white balance function blindly, the operation range of auto white balance function is limited. This function also judges whether indoor or outdoor from the brightness and changes the withdraw range of auto white balance accordingly.

#### ◇ Pre-set

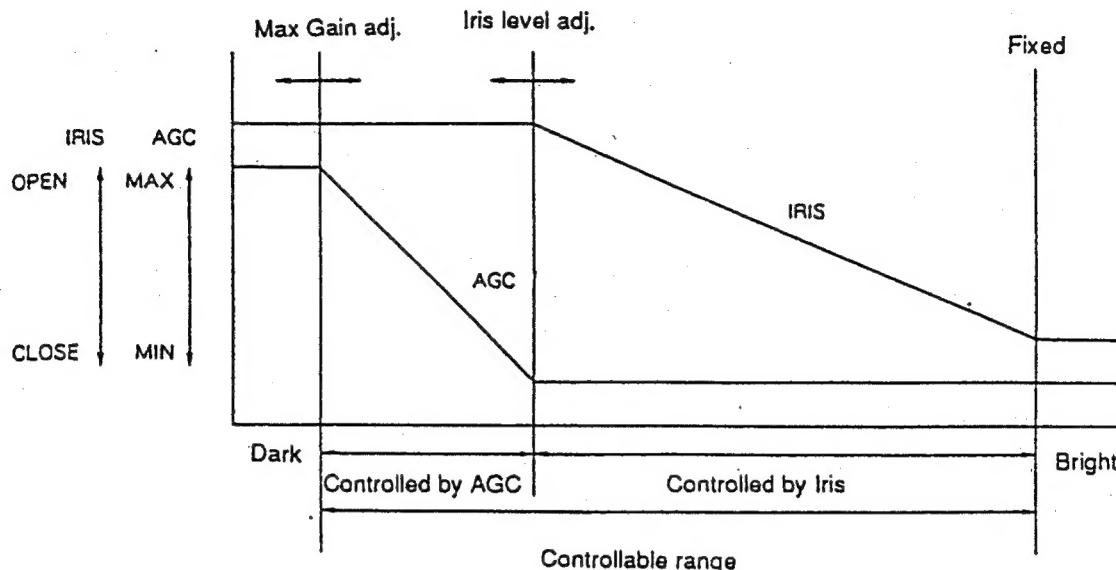
Indoor fix (3200K) and outdoor fix (5800K) are selectable.

#### ◇ One push white balance

One push white balance function is a function to withdraw to white forcibly and capture an image under one fixed color temperature condition. Natural and faithful color is achieved without any influence from the changable conditions around the subject. When setting, send one push white balance trigger with white subject over half of the whole image occupied. The data of the one push white balance is cleared when turning off power supply. If power supply turned off once, re-set one push white balance.

## ==== Bright Control =====

Bright Control is an adjustment function of the brightness with the combination of gain and iris. When in darkness, gain controls exposure and when in the brightness, iris controls exposure. Since both gain and iris are fixed, this function is useful when capturing images under fixed brightness condition. The status at auto exposure will be held once when changing the mode from auto exposure to Bright Control.



STEP	GAIN	IRIS	STEP	GAIN	IRIS	STEP	GAIN	IRIS
1	18dB	F1.4	9	0dB	F2	17	0dB	F8
2	15dB	F1.4	10	0dB	F2.4	18	0dB	F9.6
3	12dB	F1.4	11	0dB	F2.8	19	0dB	F11
4	9dB	F1.4	12	0dB	F3.4	20	0dB	F14
5	6dB	F1.4	13	0dB	F4	21	0dB	F16
6	3dB	F1.4	14	0dB	F4.8	22	0dB	F19
7	0dB	F1.4	15	0dB	F5.6	23	0dB	>F22
8	0dB	F1.7	16	0dB	F6.8			

note: F number of Step 23 is larger than F22 but it doesn't become CLOSE.

## ==== Exposure compensation =====

Exposure Compensation function is a brighter/darker adjustment function of the brightness when in auto (auto iris, AGC). The brightness when Exposure Compensation is OFF (auto iris, AGC) is a base (step 0) and each 7 steps to brighter and darker than the base condition (step 0) are adjustable. Iris and gain are in auto mode.

---

---

Shutter priority mode

---

Corresponding to selected electronic shutter speed (28 speeds), iris is adjusted automatically. Gain is in auto setting.

1	1/60 (PAL:1/50)	11	1/300	21	1/1750
2	1/60	12	1/350	22	1/2000
3	1/75	13	1/425	23	1/2500
4	1/90	14	1/500	24	1/3000
5	1/100	15	1/600	25	1/3500
6	1/125 (PAL:1/120)	16	1/725	26	1/4000
7	1/150	17	1/850	27	1/6000
8	1/180	18	1/1000	28	1/10000
9	1/215	19	1/1250		
10	1/250	20	1/1500		

---

---

Auto flickerless function

---

EVI-310/311 has auto flickerless function which reduces flicker automatically caused under fluorescent light in the area where electric wave frequency is different from the camera. To set to complete flickerless, set shutter speed to 1/100 sec.

---

---

Iris priority mode

---

Corresponding to selected iris position (17 different positions), shutter speed is adjusted automatically. Gain is in auto mode.

1	F19	9	F4.8
2	F16	10	F4
3	F14	11	F3.4
4	F11	12	F2.8
5	F9.6	13	F2.4
6	F8	14	F2
7	F6.8	15	F1.7
8	F5.6	16	F1.4

---

## Gain priority mode

---

Manual gain is set (8 different level). Shutter is in normal mode (1/60 : NTSC, 1/50 PAL) and iris is in auto mode.

1	-3dB
2	0dB
3	+3dB
4	+6dB
5	+9dB
6	+12dB
7	+15dB
8	+18dB

---

## Position Pre-set

---

Using Position Pre-set function, 6 different camera conditions are pre-setable. With this useful function, camera is possible to be set as required instantly without adjusting zoom position, focus (auto, manual position), white balance, iris, gain, shutter speed, and bright control each time.

◇ Setting

After setting a camera functions as required, pre-set the camera to a preferable position number. When the position number is selected, each function will be set as memorized in advance. Once it is reset, the functions will be in full auto mode.

---

## Factory Pre-set

---

With Position Pre-set function, the camera functions before pre-set and after reset are in full auto mode. However, with Factory Pre-set function, it is possible to keep the data semipermanently by writing the data into internal nonvolatile memory. Using this function, each camera functions before pre-set, after reset, and when turning on power supply ,when using position pre-set, are setable as desired.

Since a special tool is necessary, please contact us for the details.

Each functions are controlled by different method.  
Please refer to Section 8 for the details of function controlling method.

Control method Controlable functions	FK-56	RM-95	VISCA /RS232C	ECCP	Extra Circuit
Zoom Tele/Wide	○	○	○	○	
Zoom Position (Preset/Detect)			○	○	
Focus Auto/Manual	○	○	○	○	
Focus Far/Near	○	○	○	○	
Focus Position (Preset/Detect)			○	○	
White Balance mode selection			○	○	○
White Balance mode detection			○	○	
Bright Control Up/Down			○	○	○
Exposure Compensation Up/Down			○	○	○
Exp. Compensation (Preset/Detect)			○	○	
Shutter Priority Up/Down			○	○	
Shutter Priority (Preset/Detect)			○	○	
Iris Priority Up/Down			○	○	
Iris Priority (Preset/Detect)			○	○	
Gain Priority Up/Down			○	○	
Gain Priority (Preset/Detect)			○	○	
Position Preset (Preset/Reset)			○	○	○
Position Preset (Detect)			○	○	

## 8. Operation

### Operation

#### ◇ Power Supply

Please supply DC  $7.5 \pm 1.5V$  (2.8W) to CN 351 with accessory harness.  
Red (No.1) is plus (+).

#### ◇ Video Signal Output

Composite signal and YC video signal are output at CN 654.

#### ◇ Backup Switch

- When backup switch is ON, positions of zoom and focus is memorized to the camera.
- Since backup battery is re-chargeable, exchanging is unnecessary.
- Backup lasts for two weeks when the battery is full charged.
- Factory setting is OFF.

### Function Controlling

#### ◇ FK-56 board

This board is used to control a lens. FK-56 board is removable from side frame of the camera.

#### ■ Auto Focus ON/OFF

- Each time AF ON/OFF switch is pushed, ON/OFF is switched, and LED is lighted when Auto Focus is ON.
- When Auto Focus is OFF, the focus is adjustable by pushing Focus FAR or Focus NEAR switches. Adjustment is not available when Auto Focus is ON.

#### ■ Zoom Adjustment

Zoom adjustment is available by pushing TELE or WIDE switches.

#### ◇ ECCP (EVI Camera Control Protocol)

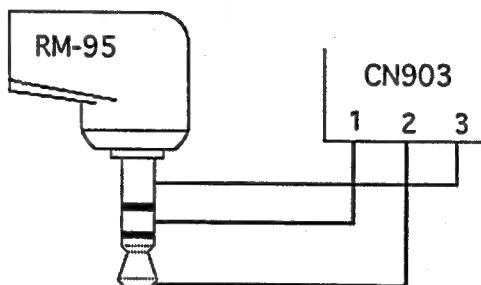
EVI-310/311 has ECCP terminals with which each camera function is controlled directly by serial communications (9600bits/sec., asynchronous interactive serial communications). It is possible to control the camera and read the camera data. To this ECCP terminals, remote controller (RM-95) and VISCA/RS 232C interface board are connectable. As to the details on ECCP usage, a contract is necessary so please contact us.

## ◇ VISCA / RS232C - with Interface Board/ IF-51

With Interface Board/IF-51 (extra charged optional accessory), each camera functions are controllable by RS232C port of a computer. It is possible to control a camera and read the camera data. IF-51 board can be fixed to the side of the camera body. In this case, FK-56 board has to be removed. Zoom and focus are operationable with buttons on IF-51 board. Please contact us for the details on VISCA/RS232C.

## ◇ Remote Controller - RM-95

With a remote controller, RM-95 for Sony consumer Camcorders, zooming and focus controlling are possible. Please connect to CN903 (3P) as below.



## ◇ Controlling with extra circuit

By adding a switch circuit, the following function will be controllable.  
Use CN901 (20P) and accessory 20P flexible cable.

note: Please refer to the circuit diagram (page 15)

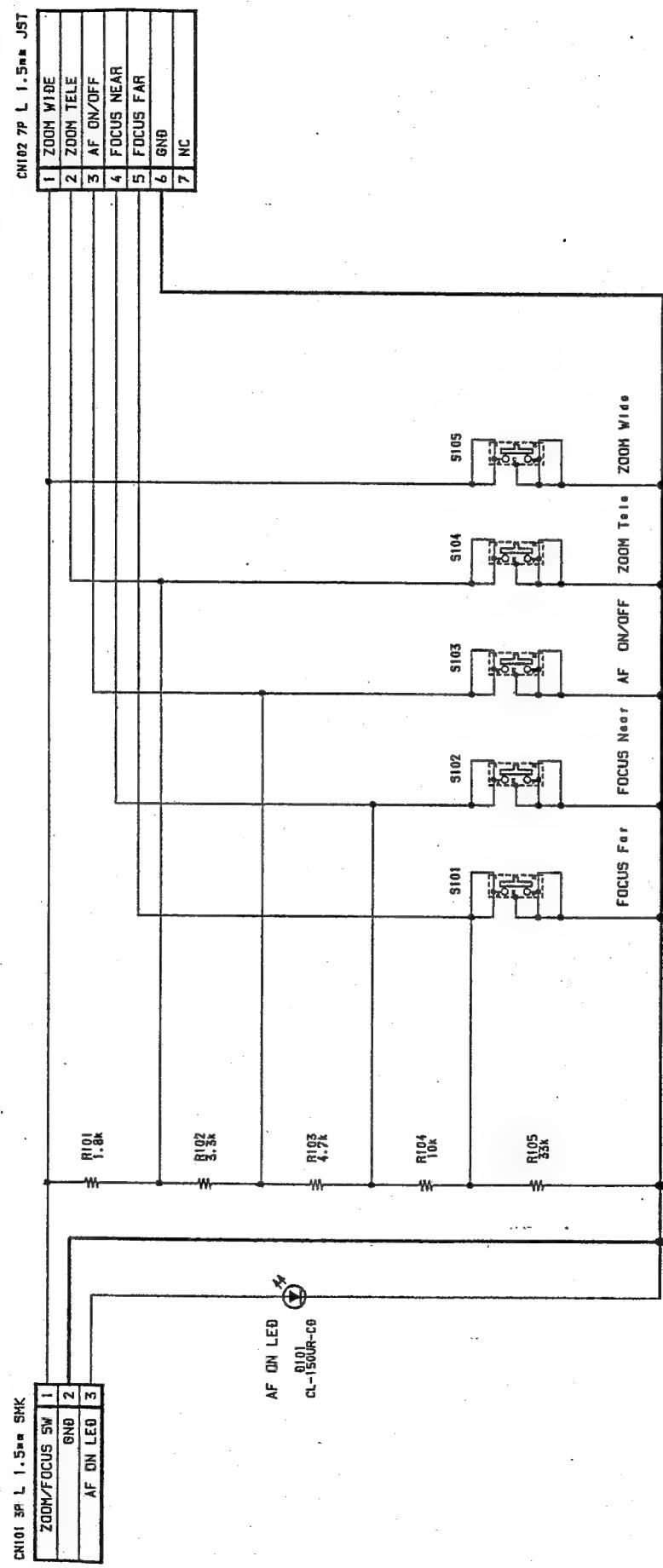
### CN901:20P

- |                  |                     |
|------------------|---------------------|
| 1. POSITION SW A | 11. IN DOOR LED     |
| 2. POSITION SW B | 12. OUT DOOR LED    |
| 3. PRE/RST AWB   | 13. AE LED          |
| 4. AE CONT       | 14. KEY LOCK LED    |
| 5. PO 1 LED      | 15. AWB LED         |
| 6. PO 2 LED      | 16. ONE PUSH WB LED |
| 7. PO 3 LED      | 17. BACK LIGHT      |
| 8. PO 4 LED      | 18. BRIGHT          |
| 9. PO 5 LED      | 19. D 5V            |
| 10. PO 6 LED     | 20. GND             |

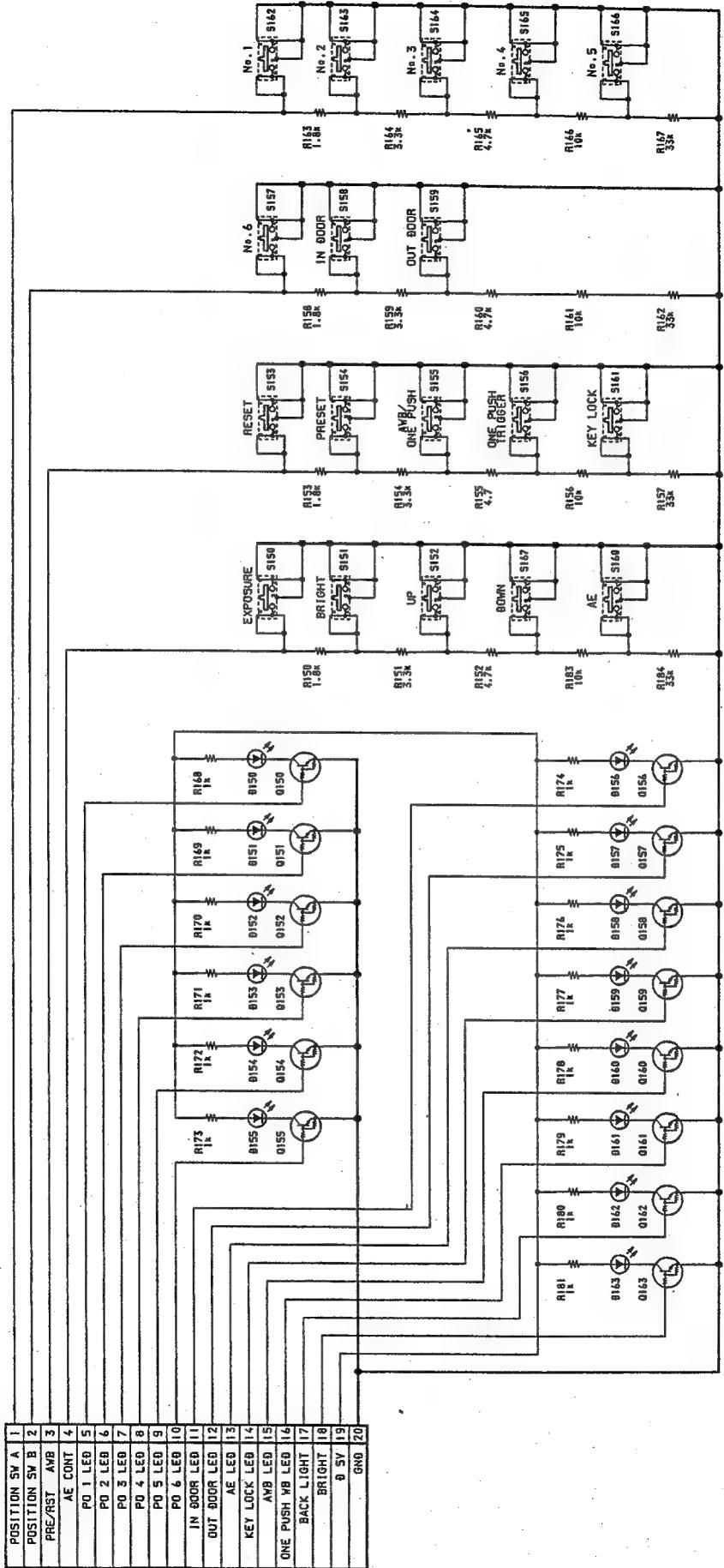
### Controlable Function

- White Balance
- Position Preset
- Bright Control
- Exposure Compensation

# FK-56 Board Circuit Diagram



## Control By Extra Circuit — Sample Circuit Diagram



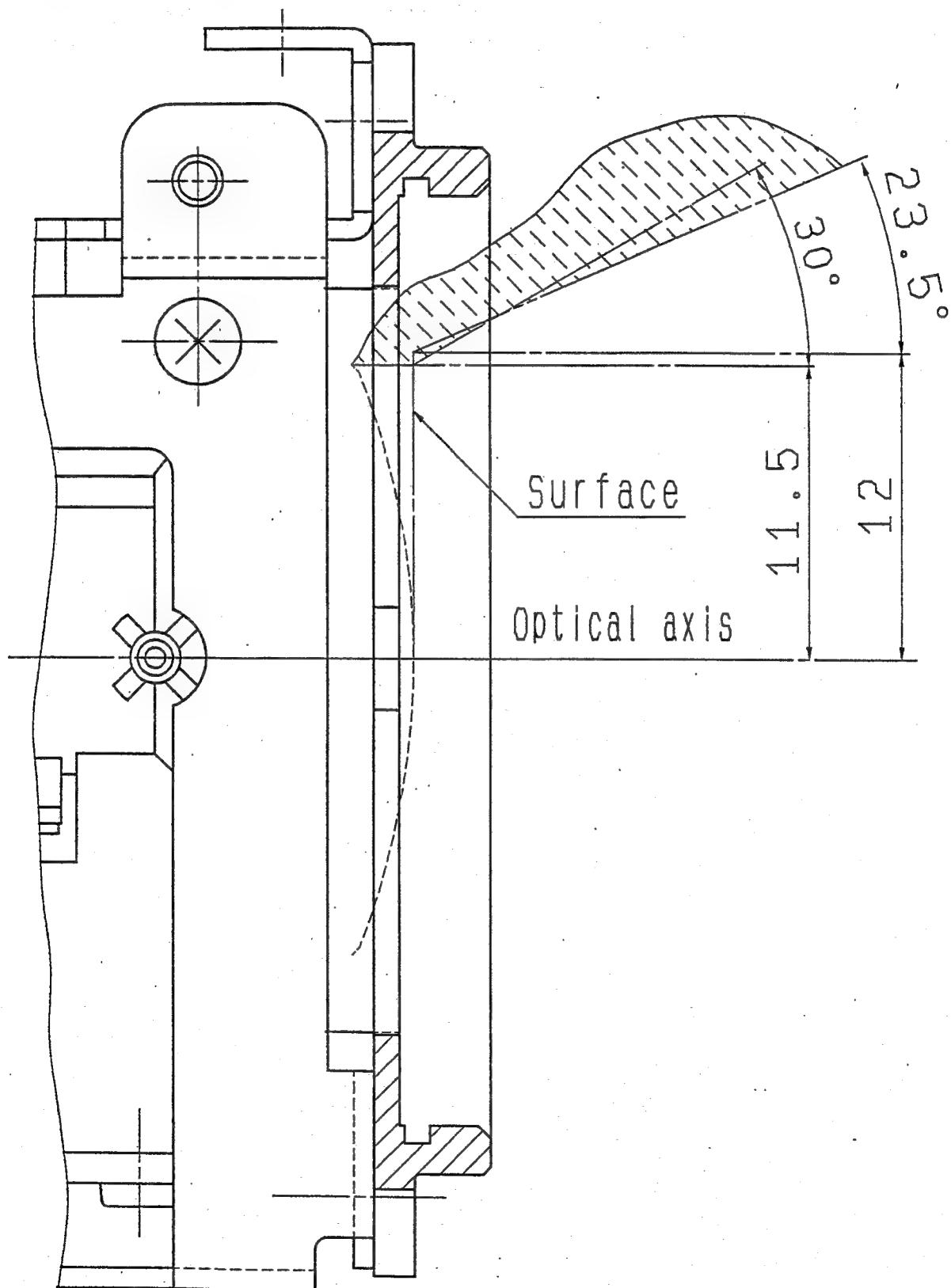
## 9 Installation

### ◇ Installation

For installation, use tripod screw below or M2 screws on chassis.

It is possible to remove the plate for tripod.

In case of designing housing etc., please refere to the following drawing.



## ■ 10. Note

- Do not add any force to bend printed circuit boards.
- Do not add voltage with over regular spec. (Max. 9V)  
Heat will be caused when using 9V voltage but it is not abnormal.
- To prevent electrostatic discharges, please use earth band when touching the boards.  
Please use unistatic processed material for packing.
- Please use a carton box shipped from Sony when you ship.
- A clatter might be heard when shaking a camera with power supply turned off.  
However, this clatter is caused by vibration of linear motor inside of the lens.  
No quality problem.

## ■ 11. Others

External synchronization is not available. RGB output is not available.

## ■ 12 Optional Accessory

### ◇ Interface Board / IF-51

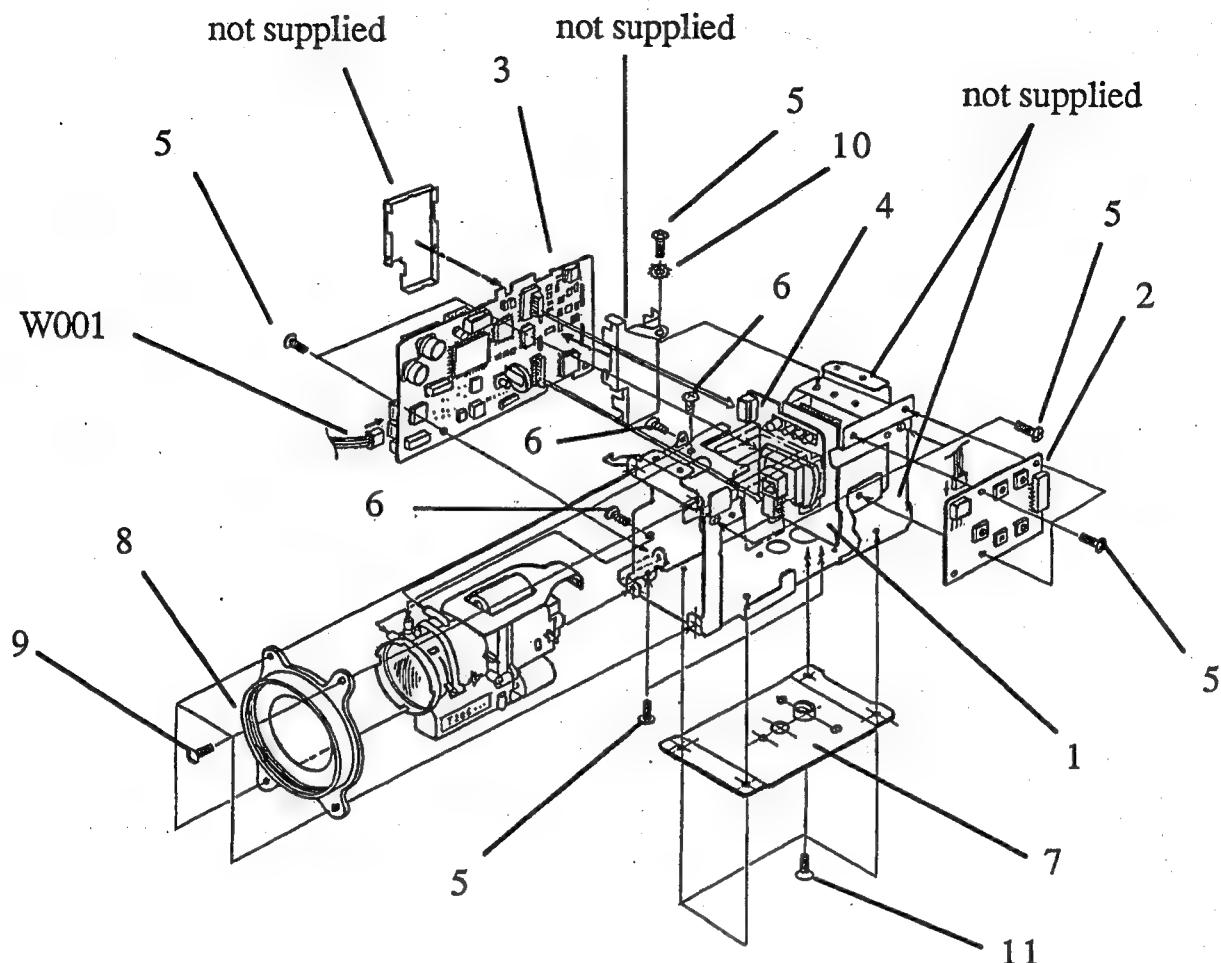
By using Interface Board/IF-51, it is possible to control camera functions through RS232C port of computers. IF-51 is possible to mount at the side of the camera. In this case, FK-56 Board should be taken off. Zoom and focus are possible to control also by the button on IF-51. Please ask for more details.

### ◇ Conversion lens

It is possible to adopt conversion lens ( $\Phi 37$ ) such as wide conversion lens or close up lens of consumer Camcorder.

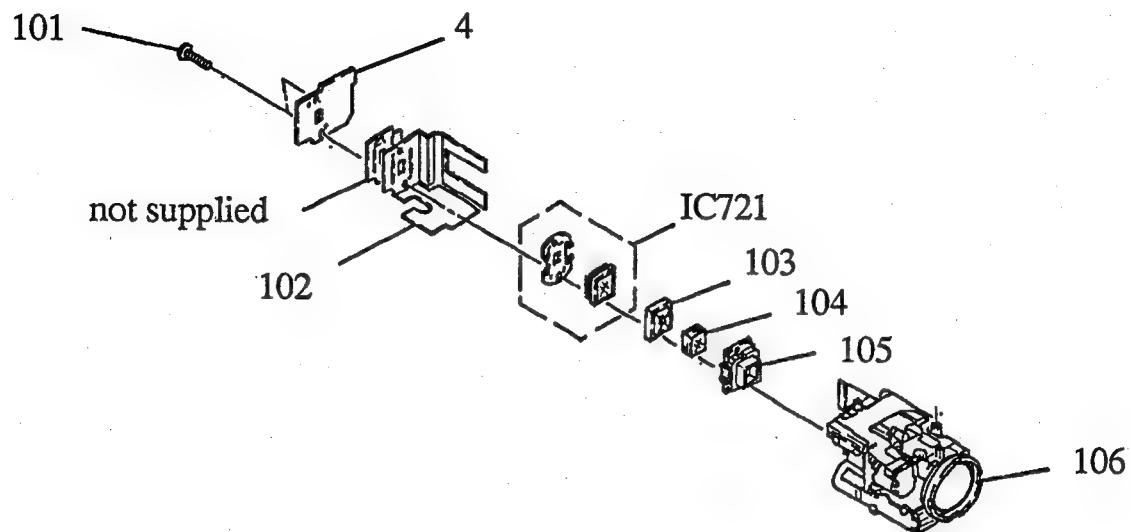
## 2. EXPLODED VIEWS

### 2-1. Main assembly



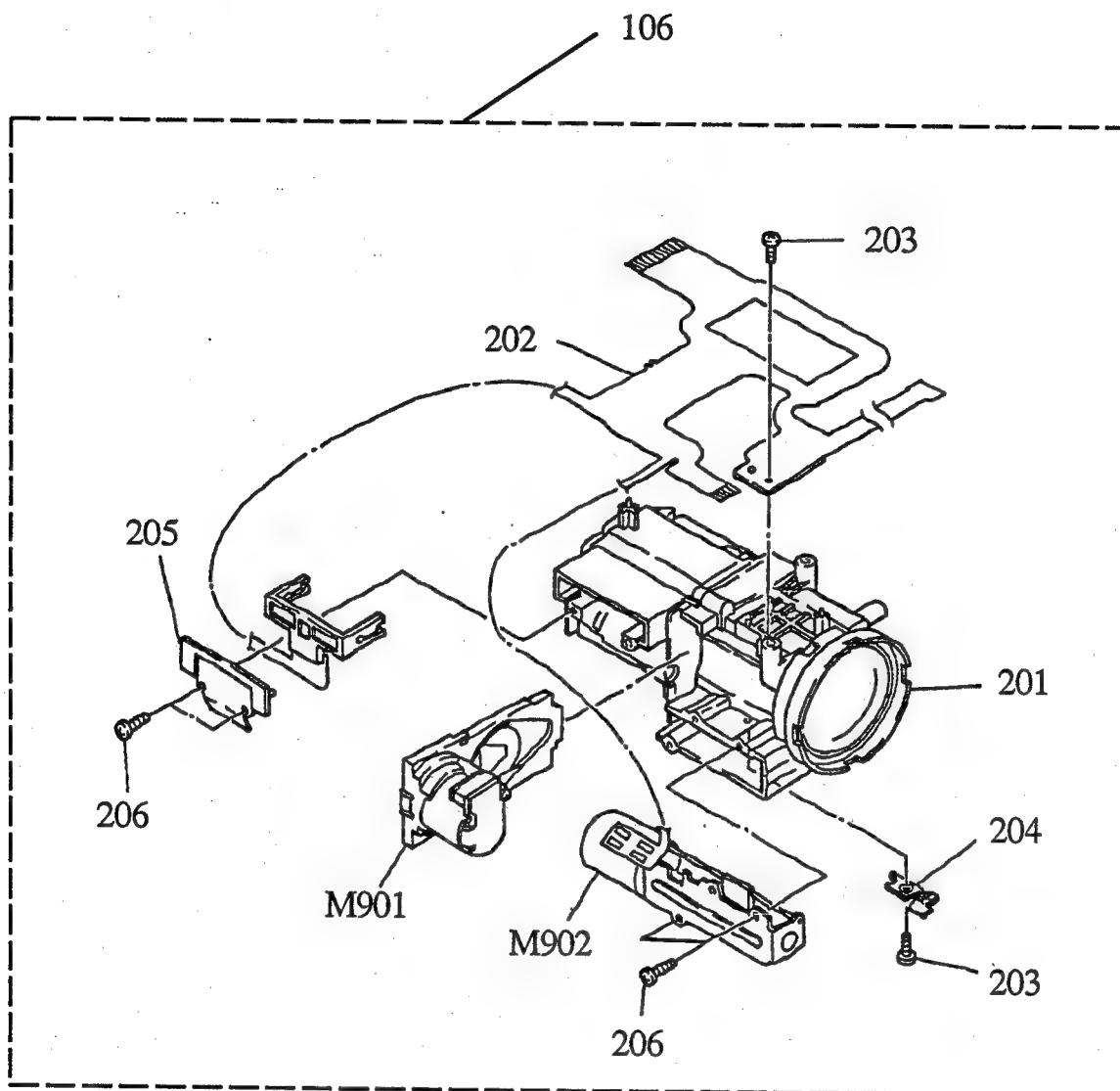
Ref. No.	Part No.	Description
* 1	A-7053-818-A	LD-62 BOARD, COMPLETE
* 2	A-7053-820-A	FK-56 BOARD, COMPLETE
* 3	A-7063-819-A	VC-128 BOARD, COMPLETE
* 4	A-7071-932-A	CD-99 BOARD, COMPLETE
5	3-713-786-51	SCREW (M2x3)
6	3-719-601-01	SCREW (B2x5), TAPPING
* 7	3-956-679-01	SHEET METAL, TRIPOD
* 8	3-956-683-01	ADAPTOR, F FITTING ( $\phi$ 37mm)
9	7-621-775-10	SCREW (+B2.6x4)
10	7-623-420-07	LW 2, TYPE B
11	7-627-452-18	SCREW, PRECISION (+K2x3)
*W001	1-952-480-11	HARNESS (FK-56)

## 2-2. Lens & CCD assemblies



Ref. No.	Part No.	Description
101	3-947-268-11	SCREW (B TIGHT) (2x7.5), TAPPING
* 102	3-949-025-02	HEAT SINK, CD
103	3-949-283-01	RUBBER (2), SEAL
104	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)
105	3-949-282-01	ADAPTOR (EM), CCD FITTING
106	8-848-700-01	DEVICE, LENS LSV-100A
IC721	A7030-370-A	CCD BLOCK ASSY (ICX058AK-2) (CCD IMAGER)

## 2-3. Lens device assembly (LSV-100A)



Ref. No.	Part No.	Description
106	8-848-700-01	DEVICE, LENS LSV-100A
201	A-4910-494-A	LSV-100 OPTICS ASSY (RP)
202	A-4910-479-A	FLEXIBLE BLOCK ASSY
203	3-713-791-51	SCREW (M1.7x3.5), TAPPING, P2
204	2-626-179-01	HOLDER, Z END
205	2-626-144-01	RETAINER, MR
206	3-713-791-41	SCREW(M1.5x5), TAPPING, P2
M901	1-547-574-11	IRIS (IRX-002)
M902	8-835-491-01	MOTOR, STEPPING (SPB-01S01N) (ZOOM)
IC721	A-7030-370-A	CCD BLOCK ASSY (ICX058AK-2) (CCD IMAGER)

### 3. ELECTRICAL PARTSLIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

● Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

● **SEMICONDUCTORS**

In each case, u:μ, for example:  
uA ... : μA. uPA... : μPA.

uPB... : μPB. uPC... : μPC. uPD... : μPD..

● **CAPACITORS**

uF: μF

● **COILS**

uH: μH

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark			
*	A-7063-819-A	VC-128 BOARD, COMPLETE			C600	1-164-156-11	CERAMIC CHIP	0.1uF	25V		
*****											
< BATTERY >											
BT901 1-528-330-11 BATTERY, LITHIUM (SECONDARY)											
< CAPACITOR >											
C353	1-135-340-11	TANTAL. CHIP	10uF	20%	20V	C601	1-135-145-11	TANTALUM CHIP	0.47uF	10% 35V	
C354	1-137-307-11	FILM CHIP	470PF	2%	16V	C602	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C355	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C603	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C357	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C604	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C605	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C360	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	C608	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C361	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	C609	1-135-259-11	TANTALUM CHIP	10uF	20% 6.3V	
C364	1-164-730-11	CERAMIC CHIP	0.0012uF	10%	50V	C610	1-162-950-11	CERAMIC CHIP	56PF	5% 50V	
C365	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	C613	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C366	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C614	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C369	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C615	1-162-915-11	CERAMIC CHIP	10PF	0.5PF 50V	
C370	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C617	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C373	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C618	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C374	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C619	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C375	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C620	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C376	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C621	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C377	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C622	1-135-091-91	TANTAL. CHIP	1uF	20% 16V	
C378	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C623	1-135-091-91	TANTAL. CHIP	1uF	20% 16V	
C380	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C624	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C381	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C625	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C384	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C626	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C385	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C627	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C386	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C628	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C387	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C629	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C388	1-164-830-11	CERAMIC CHIP	1uF	22%	16V	C630	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C389	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C631	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C390	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C651	1-162-922-11	CERAMIC CHIP	39PF	5% 50V	
C391	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C652	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C394	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C654	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C396	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C655	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
C397	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C656	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C398	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C657	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
						C660	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	
						C664	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
						C666	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
						C668	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
						C673	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
						C674	1-164-156-11	CERAMIC CHIP	0.1uF	25V	

Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark
C675	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C927	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C678	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C928	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V
C679	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C930	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C680	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C970	1-126-191-11	ELECT	0.47uF	20% 50V
C681	1-164-156-11	CERAMIC CHIP	0.1uF	25V					< CONNECTOR >
C684	1-162-946-11	CERAMIC CHIP	27PF	5% 50V	* CN351	1-580-055-21	PIN, CONNECTOR 2P		
C685	1-162-974-11	CERAMIC CHIP	0.01uF	50V	CN601	1-691-475-21	CONNECTOR, BOARD TO BOARD 18P		
C686	1-162-946-11	CERAMIC CHIP	27PF	5% 50V	CN651	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P		
C690	1-163-227-11	CERAMIC CHIP	10PF	0.5PF 50V	CN652	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P		
C691	1-163-227-11	CERAMIC CHIP	10PF	0.5PF 50V	CN654	1-580-789-21	PIN, CONNECTOR (SMD) 6P		
C701	1-162-995-11	CERAMIC CHIP	0.022uF	50V	CN901	1-573-929-11	CONNECTOR, FFC/FPC (ZIF) 20P		
C801	1-126-205-11	ELECT CHIP	47uF	20% 6.3V	* CN902	1-750-502-11	PIN, CONNECTOR (1.5MM) (SMD) 3P		
C802	1-164-156-11	CERAMIC CHIP	0.1uF	25V	* CN903	1-580-056-21	PIN, CONNECTOR 3P		
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V					< TRIMMER >
C804	1-164-633-11	CERAMIC CHIP	0.1uF	10% 25V	CT601	1-141-430-51	CAP, CHIP TRIMMER		
C805	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V					< DIODE >
C806	1-164-633-11	CERAMIC CHIP	0.1uF	10% 25V	D351	8-719-027-77	DIODE MA796-TX		
C807	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D901	8-719-989-03	DIODE DAN222		
C808	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	D902	8-719-989-03	DIODE DAN222		
C809	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D903	8-719-025-87	DIODE RD8.2UM		
C810	1-162-995-11	CERAMIC CHIP	0.022uF	50V	D973	8-719-938-72	DIODE SB01-05CP		
C811	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V					< FILTER >
C812	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	FL651	1-239-352-11	FILTER, LOW PASS		
C813	1-135-217-21	TANTALUM CHIP	15uF	20% 6.3V					< IC >
C814	1-164-373-11	CERAMIC CHIP	0.033uF	25V	IC351	8-759-060-94	IC MB3785APFV-G-BND-ER		
C815	1-164-361-11	CERAMIC CHIP	0.047uF	16V	IC601	8-752-327-48	IC CXD1250N		
C816	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	IC602	8-752-353-25	IC CXD1265R-T6		
C817	1-135-181-21	TANTALUM CHIP	4.7uF	20% 6.3V	IC603	8-752-053-26	IC CXA1399Q		
C819	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	IC604	8-752-060-50	IC CXA1577R-T4		
C820	1-135-338-11	TANTAL. CHIP	220uF	20% 4V	IC651	8-759-044-78	IC AK6420F		
C821	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	IC653	8-759-197-31	IC SC406818FUMC68HC11M2		
C822	1-135-338-11	TANTAL. CHIP	220uF	20% 4V	IC654	8-759-064-36	IC MB88346BPFV		
C823	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	IC656	8-759-262-36	IC CXD2133BR-T6		
C824	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	IC659	8-752-350-13	IC CXD2130R-T6		
C901	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC660	8-752-358-10	IC CXD2101BR-T6		
C902	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC801	8-752-053-21	IC CXA1211M		
C903	1-135-217-21	TANTALUM CHIP	15uF	20% 6.3V	IC802	8-752-009-51	IC CX20095A		
C904	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	IC901	8-759-044-78	IC AK6420F		
C906	1-135-217-21	TANTALUM CHIP	15uF	20% 6.3V	IC902	8-759-099-91	IC S-8420JP-T2		
C907	1-162-917-11	CERAMIC CHIP	15PF	5% 50V	IC903	8-759-197-30	IC MB89092PFV-G-138A		
C908	1-162-917-11	CERAMIC CHIP	15PF	5% 50V	IC904	8-759-059-05	IC TL1596CPW-ELM1000		
C909	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC905	8-759-064-36	IC MB88346BPFV		
C910	1-164-156-11	CERAMIC CHIP	0.1uF	25V					
C913	1-164-156-11	CERAMIC CHIP	0.1uF	25V					
C914	1-162-974-11	CERAMIC CHIP	0.01uF	50V					
C922	1-135-156-21	TANTALUM CHIP	6.8uF	10% 10V					
C923	1-164-361-11	CERAMIC CHIP	0.047uF	16V					
C924	1-164-361-11	CERAMIC CHIP	0.047uF	16V					
C925	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V					

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
< COIL >											
L358	1-424-653-11	COIL, CHOKE 10uH		Q603	8-729-427-74	TRANSISTOR	XP4601				
L359	1-424-653-11	COIL, CHOKE 10uH		Q656	8-729-425-50	TRANSISTOR	ZSB1462Q				
L360	1-424-674-11	COIL, CHOKE 22uH		Q657	8-729-425-50	TRANSISTOR	ZSB1462Q				
L361	1-424-674-11	COIL, CHOKE 22uH		Q658	8-729-425-50	TRANSISTOR	ZSB1462Q				
L362	1-424-675-11	COIL, CHOKE 33uH		Q659	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L363	1-412-027-11	INDUCTOR CHIP 2.2uH		Q800	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L366	1-412-033-11	INDUCTOR CHIP 220uH		Q801	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L367	1-412-033-11	INDUCTOR CHIP 220uH		Q802	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L368	1-412-027-11	INDUCTOR CHIP 2.2uH		Q803	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L369	1-412-028-11	INDUCTOR CHIP 4.7uH		Q804	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L371	1-412-028-11	INDUCTOR CHIP 4.7uH		Q805	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L372	1-412-026-11	INDUCTOR CHIP 1uH		Q806	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L373	1-412-026-11	INDUCTOR CHIP 1uH		Q807	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L600	1-412-991-11	INDUCTOR 10uH		Q808	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L601	1-412-991-11	INDUCTOR 10uH		Q809	8-729-120-28	TRANSISTOR	ZSC1623-L5L6				
L602	1-412-030-11	INDUCTOR 22uH		Q901	8-729-905-12	TRANSISTOR	DTA144EU				
L603	1-414-037-11	INDUCTOR 10uH		Q902	8-729-905-12	TRANSISTOR	DTA144EU				
L604	1-412-029-11	INDUCTOR CHIP 10uH		Q971	8-729-425-50	TRANSISTOR	ZSB1462Q				
L651	1-412-991-11	INDUCTOR 10uH		Q972	8-729-905-18	TRANSISTOR	DTC144EU				
L653	1-414-078-11	INDUCTOR 10uH		< RESISTOR >							
L655	1-414-078-11	INDUCTOR 10uH		R351	1-216-837-11	METAL CHIP	22K 5% 1/16W				
L656	1-414-078-11	INDUCTOR 10uH		R352	1-218-707-11	METAL CHIP	4.3K 0.50% 1/16W				
L659	1-412-991-11	INDUCTOR 10uH		R353	1-216-842-11	METAL CHIP	56K 5% 1/16W				
L661	1-412-961-11	INDUCTOR 68uH		R354	1-216-837-11	METAL CHIP	22K 5% 1/16W				
L663	1-414-117-11	INDUCTOR 1uH		R357	1-216-841-11	METAL CHIP	47K 5% 1/16W				
L664	1-412-979-21	INDUCTOR 1uH		R360	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
L665	1-412-979-21	INDUCTOR 1uH		R361	1-218-736-11	METAL CHIP	68K 0.50% 1/16W				
L666	1-414-117-11	INDUCTOR 1uH		R362	1-218-714-11	METAL CHIP	8.2K 0.50% 1/16W				
L667	1-414-117-11	INDUCTOR 1uH		R363	1-216-834-11	METAL CHIP	12K 5% 1/16W				
L801	1-414-078-11	INDUCTOR 10uH		R364	1-218-721-11	METAL CHIP	16K 0.50% 1/16W				
L901	1-414-120-11	INDUCTOR 47uH		R365	1-216-847-11	METAL CHIP	150K 5% 1/16W				
< IC LINK >											
PS901	1-576-123-21	LINK, IC		R366	1-216-845-11	METAL CHIP	100K 5% 1/16W				
< TRANSISTOR >											
Q354	8-729-822-09	TRANSISTOR	2SB1122-S	R367	1-216-830-11	METAL CHIP	5.6K 5% 1/16W				
Q355	8-729-823-84	TRANSISTOR	FP102	R368	1-216-832-11	METAL CHIP	8.2K 5% 1/16W				
Q356	8-729-823-84	TRANSISTOR	FP102	R369	1-218-730-11	METAL CHIP	39K 0.50% 1/16W				
Q357	8-729-823-82	TRANSISTOR	FP101	R372	1-218-724-11	METAL CHIP	22K 0.50% 1/16W				
Q358	8-729-017-10	TRANSISTOR	2SJ244JY-TR	R373	1-218-727-11	METAL CHIP	30K 0.50% 1/16W				
Q360	8-729-428-88	TRANSISTOR	UN9113	R374	1-218-873-11	METAL CHIP	12K 0.50% 1/16W				
Q361	8-729-427-16	TRANSISTOR	RN2904-TE85L	R375	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
Q362	8-729-429-32	TRANSISTOR	UN9210-QRS	R378	1-216-832-11	METAL CHIP	8.2K 5% 1/16W				
Q363	8-729-427-46	TRANSISTOR	XP4213	R379	1-218-710-11	METAL CHIP	5.6K 0.50% 1/16W				
Q601	8-729-427-70	TRANSISTOR	XP4401	R382	1-216-864-11	METAL CHIP	0 5% 1/16W				
				R383	1-216-819-11	METAL CHIP	680 5% 1/16W				
				R384	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
				R387	1-218-704-11	METAL CHIP	3.3K 0.50% 1/16W				
				R390	1-216-845-11	METAL CHIP	100K 5% 1/16W				
				R391	1-216-041-00	METAL CHIP	470 5% 1/10W				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R392	1-216-041-00	METAL CHIP	470 5% 1/10W	R697	1-216-821-11	METAL CHIP	1K 5% 1/16W
R393	1-216-041-00	METAL CHIP	470 5% 1/10W	R698	1-216-821-11	METAL CHIP	1K 5% 1/16W
R394	1-216-041-00	METAL CHIP	470 5% 1/10W	R699	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R395	1-216-009-00	METAL CHIP	22 5% 1/10W	R700	1-216-837-11	METAL CHIP	22K 5% 1/16W
R396	1-216-845-11	METAL CHIP	100K 5% 1/16W	R701	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R397	1-216-821-11	METAL CHIP	1K 5% 1/16W	R702	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R398	1-216-828-11	METAL CHIP	3.9K 5% 1/16W	R703	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R399	1-216-841-11	METAL CHIP	47K 5% 1/16W	R704	1-216-819-11	METAL CHIP	680 5% 1/16W
R400	1-216-821-11	METAL CHIP	1K 5% 1/16W	R705	1-216-864-11	METAL CHIP	0 5% 1/16W
R603	1-216-833-11	METAL CHIP	10K 5% 1/16W	R801	1-216-833-11	METAL CHIP	10K 5% 1/16W
R604	1-216-845-11	METAL CHIP	100K 5% 1/16W	R802	1-216-821-11	METAL CHIP	1K 5% 1/16W
R608	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R803	1-216-833-11	METAL CHIP	10K 5% 1/16W
R609	1-218-721-11	METAL CHIP	16K 0.50% 1/16W	R804	1-216-809-11	METAL CHIP	100 5% 1/16W
R610	1-218-692-11	METAL CHIP	1K 0.50% 1/16W	R805	1-216-837-11	METAL CHIP	22K 5% 1/16W
R611	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R806	1-216-837-11	METAL CHIP	22K 5% 1/16W
R612	1-216-837-11	METAL CHIP	22K 5% 1/16W	R807	1-216-819-11	METAL CHIP	680 5% 1/16W
R613	1-216-801-11	METAL CHIP	22 5% 1/16W	R808	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R614	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R809	1-216-817-11	METAL CHIP	470 5% 1/16W
R616	1-216-833-11	METAL CHIP	10K 5% 1/16W	R810	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R617	1-216-805-11	METAL CHIP	47 5% 1/16W	R811	1-216-815-11	METAL CHIP	330 5% 1/16W
R618	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R812	1-216-807-11	METAL CHIP	68 5% 1/16W
R619	1-216-816-11	METAL CHIP	390 5% 1/16W	R813	1-216-813-11	METAL CHIP	220 5% 1/16W
R620	1-216-841-11	METAL CHIP	47K 5% 1/16W	R814	1-216-833-11	METAL CHIP	10K 5% 1/16W
R641	1-216-845-11	METAL CHIP	100K 5% 1/16W	R815	1-216-818-11	METAL CHIP	560 5% 1/16W
R643	1-216-845-11	METAL CHIP	100K 5% 1/16W	R816	1-216-817-11	METAL CHIP	470 5% 1/16W
R644	1-216-845-11	METAL CHIP	100K 5% 1/16W	R818	1-216-815-11	METAL CHIP	330 5% 1/16W
R645	1-216-821-11	METAL CHIP	1K 5% 1/16W	R819	1-216-821-11	METAL CHIP	1K 5% 1/16W
R646	1-216-821-11	METAL CHIP	1K 5% 1/16W	R820	1-216-865-11	METAL CHIP	3K 5% 1/16W
R647	1-216-821-11	METAL CHIP	1K 5% 1/16W	R821	1-216-821-11	METAL CHIP	1K 5% 1/16W
R652	1-216-857-11	METAL CHIP	1M 5% 1/16W	R822	1-216-821-11	METAL CHIP	1K 5% 1/16W
R653	1-216-864-11	METAL CHIP	0 5% 1/16W	R823	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R654	1-216-821-11	METAL CHIP	1K 5% 1/16W	R824	1-216-833-11	METAL CHIP	10K 5% 1/16W
R656	1-216-805-11	METAL CHIP	47 5% 1/16W	R825	1-216-865-11	METAL CHIP	3K 5% 1/16W
R657	1-216-833-11	METAL CHIP	10K 5% 1/16W	R826	1-216-833-11	METAL CHIP	10K 5% 1/16W
R659	1-216-833-11	METAL CHIP	10K 5% 1/16W	R827	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R670	1-216-864-11	METAL CHIP	0 5% 1/16W	R828	1-216-833-11	METAL CHIP	10K 5% 1/16W
R671	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R829	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
R672	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R830	1-216-807-11	METAL CHIP	68 5% 1/16W
R676	1-216-864-11	METAL CHIP	0 5% 1/16W	R831	1-216-807-11	METAL CHIP	68 5% 1/16W
R677	1-216-864-11	METAL CHIP	0 5% 1/16W	R832	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R678	1-216-864-11	METAL CHIP	0 5% 1/16W	R833	1-216-821-11	METAL CHIP	1K 5% 1/16W
R690	1-216-833-11	METAL CHIP	10K 5% 1/16W	R901	1-216-821-11	METAL CHIP	1K 5% 1/16W
R691	1-216-816-11	METAL CHIP	390 5% 1/16W	R915	1-216-845-11	METAL CHIP	100K 5% 1/16W
R692	1-216-816-11	METAL CHIP	390 5% 1/16W	R920	1-216-817-11	METAL CHIP	470 5% 1/16W
R693	1-216-834-11	METAL CHIP	12K 5% 1/16W	R926	1-216-841-11	METAL CHIP	47K 5% 1/16W
R694	1-216-834-11	METAL CHIP	12K 5% 1/16W	R929	1-216-833-11	METAL CHIP	10K 5% 1/16W
R695	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R930	1-216-845-11	METAL CHIP	100K 5% 1/16W
R696	1-216-837-11	METAL CHIP	22K 5% 1/16W	R931	1-216-821-11	METAL CHIP	1K 5% 1/16W
				R932	1-216-049-11	METAL CHIP	1K 5% 1/10W

Ref. No.	Part No.	Description			Remark
R934	1-216-851-11	METAL CHIP	330K	5%	1/16W
R935	1-216-049-00	METAL CHIP	1K	5%	1/10W
R936	1-216-821-11	METAL CHIP	1K	5%	1/16W
R937	1-216-821-11	METAL CHIP	1K	5%	1/16W
R946	1-216-841-11	METAL CHIP	47K	5%	1/16W
R947	1-216-821-11	METAL CHIP	1K	5%	1/16W
R948	1-216-845-11	METAL CHIP	100K	5%	1/16W
R949	1-216-845-11	METAL CHIP	100K	5%	1/16W
R950	1-216-821-11	METAL CHIP	1K	5%	1/16W
R953	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R954	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R955	1-218-702-11	METAL CHIP	2.7K	0.50%	1/16W
R956	1-216-845-11	METAL CHIP	100K	5%	1/16W
R957	1-216-845-11	METAL CHIP	100K	5%	1/16W
R958	1-216-864-11	METAL CHIP	0	5%	1/16W
R959	1-216-841-11	METAL CHIP	47K	5%	1/16W
R960	1-216-809-11	METAL CHIP	100	5%	1/16W
R961	1-216-833-11	METAL CHIP	10K	5%	1/16W
R962	1-216-833-11	METAL CHIP	10K	5%	1/16W
R963	1-216-841-11	METAL CHIP	47K	5%	1/16W
R964	1-216-841-11	METAL CHIP	47K	5%	1/16W
R965	1-216-841-11	METAL CHIP	47K	5%	1/16W
R966	1-218-833-11	METAL CHIP	270	5%	1/16W
R967	1-218-684-11	METAL CHIP	470	0.50%	1/16W
R969	1-218-698-11	METAL CHIP	1.8K	0.50%	1/16W
R970	1-216-864-11	METAL CHIP	0	5%	1/16W

< NETWORK RESISTOR >

RB901 1-236-908-11 RESISTOR, NETWORK (CHIP TYPE)  
 RB902 1-236-904-11 RESISTOR, NETWORK (CHIP TYPE)  
 RB903 1-236-904-11 RESISTOR, NETWORK (CHIP TYPE)  
 RB904 1-236-904-11 RESISTOR, NETWORK (CHIP TYPE)  
 RB905 1-236-904-11 RESISTOR, NETWORK (CHIP TYPE)

< SWITCH >

S901 1-571-275-31 SWITCH, SLIDE

< TRANSFORMER >

T351 1-450-976-11 TRANSFORMER, CONVERTER

< VIBRATOR >

X601 1-579-619-11 VIBRATOR, CRYSTAL  
 X651 1-579-669-11 VIBRATOR, LITHIUM NIOBATE  
 X901 1-579-550-11 VIBRATOR, CRYSTAL

< VIBRATOR >

XTL901 1-579-369-21 VIBRATOR

Ref. No.	Part No.	Description			Remark
*	A-7071-932-A	CD-99 BOARD, COMPLETE			

< CAPACITOR >

C721 1-135-214-21 TANTAL. CHIP 4.7uF 20% 20V  
 C722 1-128-013-11 ELECT CHIP 1uF 20% 50V  
 C723 1-128-008-11 ELECT CHIP 3.3uF 20% 35V  
 C724 1-162-964-11 CERAMIC CHIP 0.001uF 10% 50V  
 C725 1-162-637-11 CERAMIC CHIP 0.47uF 16V

C726 1-135-091-91 TANTAL. CHIP 1uF 20% 16V  
 C727 1-128-004-11 ELECT CHIP 10uF 20% 16V  
 C728 1-126-607-11 ELECT CHIP 47pF 20% 4V  
 C729 1-162-974-11 CERAMIC CHIP 0.01uF 50V  
 C730 1-164-156-11 CERAMIC CHIP 0.1uF 25V

< CONNECTOR >

CN721 1-573-372-21 CONNECTOR, BOARD TO BOARD 18P

< DIODE >

D721 8-719-421-71 DIODE MA132WA  
 D722 8-719-421-69 DIODE MA133-TX  
 D723 8-719-421-71 DIODE MA132WA

< COIL >

L721 1-412-032-11 INDUCTOR CHIP 100uH

< TRANSISTOR >

Q721 8-729-425-64 TRANSISTOR 2SD2216Q  
 Q722 8-729-429-44 TRANSISTOR XP1501  
 Q723 8-729-232-86 TRANSISTOR 2SK1875-BL/V  
 Q724 8-729-102-07 TRANSISTOR 2SC2223-F13

< RESISTOR >

R723 1-216-845-11 METAL CHIP 100K 5% 1/16W  
 R724 1-216-857-11 METAL CHIP 1M 5% 1/16W  
 R725 1-216-840-11 METAL CHIP 39K 5% 1/16W  
 R726 1-216-843-11 METAL CHIP 68K 5% 1/16W  
 R727 1-216-820-11 METAL CHIP 820 5% 1/16W

R728 1-216-845-11 METAL CHIP 100K 5% 1/16W  
 R729 1-216-835-11 METAL CHIP 15K 5% 1/16W  
 R730 1-216-850-11 METAL CHIP 270K 5% 1/16W  
 R731 1-216-833-11 METAL CHIP 10K 5% 1/16W  
 R732 1-216-833-11 METAL CHIP 10K 5% 1/16W

R733 1-216-809-11 METAL CHIP 100 5% 1/16W  
 R734 1-216-829-11 METAL CHIP 4.7K 5% 1/16W

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Ref. No.	Part No.	Description	Remark
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\* A-7053-820-A FK-56 BOARD, COMPLETE

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< CONNECTOR >

\* CN101 1-750-502-11 PIN, CONNECTOR (1.5MM) (SMD) 3P

\* CN102 1-580-756-21 PIN, CONNECTOR 7P

< DIODE >

D101 8-719-026-39 DIODE CL-150UR-CD

< RESISTOR >

R101	1-216-824-11 METAL CHIP	1.8K	5%	1/16W
R102	1-216-827-11 METAL CHIP	3.3K	5%	1/16W
R103	1-216-829-11 METAL CHIP	4.7K	5%	1/16W
R104	1-216-833-11 METAL CHIP	10K	5%	1/16W
R105	1-216-839-11 METAL CHIP	33K	5%	1/16W

< SWITCH >

S101	1-572-078-11 SWITCH, TACTILE			
S102	1-572-078-11 SWITCH, TACTILE			
S103	1-572-078-11 SWITCH, TACTILE			
S104	1-572-078-11 SWITCH, TACTILE			
S105	1-572-078-11 SWITCH, TACTILE			

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\* A-7053-818-A LD-62 BOARD, COMPLETE

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< CAPACITOR >

C751	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C752	1-135-181-21 TANTALUM CHIP	4.7uF	20%	6.3V
C753	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C754	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C755	1-164-505-11 CERAMIC CHIP	2.2uF		16V
C756	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C757	1-135-181-21 TANTALUM CHIP	4.7uF	20%	6.3V
C758	1-135-181-21 TANTALUM CHIP	4.7uF	20%	6.3V
C759	1-162-964-11 CERAMIC CHIP	0.001uF	10%	50V
C760	1-164-004-11 CERAMIC CHIP	0.1uF	10%	25V
C761	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C762	1-126-205-11 ELECT CHIP	47uF	20%	6.3V
C763	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C764	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C765	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C766	1-162-968-11 CERAMIC CHIP	0.0047uF	10%	50V
C767	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C768	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C769	1-162-974-11 CERAMIC CHIP	0.01uF		50V
C771	1-162-974-11 CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark
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C772	1-164-156-11 CERAMIC CHIP	0.1uF	25V
C773	1-162-974-11 CERAMIC CHIP	0.01uF	50V
C775	1-162-974-11 CERAMIC CHIP	0.01uF	50V
C776	1-162-974-11 CERAMIC CHIP	0.01uF	50V
C777	1-162-974-11 CERAMIC CHIP	0.01uF	50V

C778	1-164-156-11 CERAMIC CHIP	0.1uF	25V
C779	1-162-968-11 CERAMIC CHIP	0.0047uF	10% 50V
C780	1-162-968-11 CERAMIC CHIP	0.0047uF	10% 50V
C781	1-162-968-11 CERAMIC CHIP	0.0047uF	10% 50V

< CONNECTOR >

CN751 1-573-935-11 CONNECTOR, FFC/FPC (ZIF) 26P

CN752 1-691-539-11 CONNECTOR, BOARD TO BOARD 30P

< IC >

IC751	8-752-841-66 IC CXP80624A-013R
IC752	8-752-355-56 IC CXD2104BN-T4
IC753	8-759-058-45 IC NJM3403AV(TE2)
IC754	8-759-058-41 IC NJM3416V(TE2)
IC755	8-759-059-03 IC LM324PW-ELL20

IC756 8-759-058-43 IC NJM3404AV(TE2)

IC757 8-759-058-41 IC NJM3416V(TE2)

IC758 8-759-058-47 IC MPC1724VM

< COIL >

L751	1-414-078-11 INDUCTOR 10uH
L752	1-412-991-11 INDUCTOR 10uH
L753	1-414-078-11 INDUCTOR 10uH
L754	1-414-078-11 INDUCTOR 10uH
L755	1-414-078-11 INDUCTOR 10uH
L756	1-412-991-11 INDUCTOR 10uH

< TRANSISTOR >

Q751	8-729-428-88 TRANSISTOR UN9113
Q752	8-729-425-64 TRANSISTOR 2SD2216Q

< RESISTOR >

R751	1-216-864-11 METAL CHIP	0	5%	1/16W
R752	1-216-857-11 METAL CHIP	1M	5%	1/16W
R753	1-218-720-11 METAL CHIP	15K	0.50%	1/16W
R754	1-218-720-11 METAL CHIP	15K	0.50%	1/16W
R755	1-218-680-11 METAL CHIP	330	0.50%	1/16W
R756	1-218-680-11 METAL CHIP	330	0.50%	1/16W
R757	1-216-835-11 METAL CHIP	15K	5%	1/16W
R758	1-216-839-11 METAL CHIP	33K	5%	1/16W
R759	1-216-839-11 METAL CHIP	33K	5%	1/16W
R760	1-218-680-11 METAL CHIP	330	0.50%	1/16W
R761	1-218-720-11 METAL CHIP	15K	0.50%	1/16W

Ref. No.	Part No.	Description		Remark
R762	1-216-827-11	METAL CHIP	3.3K	5% 1/16W
R763	1-216-837-11	METAL CHIP	22K	5% 1/16W
R764	1-216-851-11	METAL CHIP	330K	5% 1/16W
R765	1-216-821-11	METAL CHIP	1K	5% 1/16W
R766	1-216-821-11	METAL CHIP	1K	5% 1/16W
R767	1-216-833-11	METAL CHIP	10K	5% 1/16W
R768	1-216-833-11	METAL CHIP	10K	5% 1/16W
R769	1-216-837-11	METAL CHIP	22K	5% 1/16W
R770	1-216-848-11	METAL CHIP	180K	5% 1/16W
R771	1-216-833-11	METAL CHIP	10K	5% 1/16W
R772	1-216-848-11	METAL CHIP	180K	5% 1/16W
R773	1-216-821-11	METAL CHIP	1K	5% 1/16W
R774	1-216-845-11	METAL CHIP	100K	5% 1/16W
R775	1-216-841-11	METAL CHIP	47K	5% 1/16W
R776	1-216-833-11	METAL CHIP	10K	5% 1/16W
R777	1-216-833-11	METAL CHIP	10K	5% 1/16W
R778	1-216-855-11	METAL CHIP	680K	5% 1/16W
R779	1-216-833-11	METAL CHIP	10K	5% 1/16W
R780	1-216-845-11	METAL CHIP	100K	5% 1/16W
R781	1-216-845-11	METAL CHIP	100K	5% 1/16W
R782	1-216-845-11	METAL CHIP	100K	5% 1/16W
R783	1-216-833-11	METAL CHIP	10K	5% 1/16W
R784	1-216-833-11	METAL CHIP	10K	5% 1/16W
R785	1-216-820-11	METAL CHIP	820	5% 1/16W
R786	1-216-845-11	METAL CHIP	100K	5% 1/16W
R787	1-216-841-11	METAL CHIP	47K	5% 1/16W
R788	1-216-826-11	METAL CHIP	2.7K	5% 1/16W
R789	1-216-857-11	METAL CHIP	1M	5% 1/16W
R790	1-216-857-11	METAL CHIP	1M	5% 1/16W
R791	1-216-833-11	METAL CHIP	10K	5% 1/16W
R792	1-216-833-11	METAL CHIP	10K	5% 1/16W
R793	1-216-821-11	METAL CHIP	1K	5% 1/16W
R794	1-216-821-11	METAL CHIP	1K	5% 1/16W
R795	1-216-864-11	METAL CHIP	0	5% 1/16W

< NETWORK RESISTOR >

RB751 1-236-428-11 NETWORK, RES 22K  
 RB752 1-236-424-11 NETWORK, RES 10K  
 RB754 1-236-432-11 NETWORK, RES 47K

< VIBRATOR >

X751 1-579-553-11 VIBRATOR

MISCELLANEOUS

1-547-529-21 FILTER BLOCK, OPTICAL  
 8-848-700-01 DEVICE, LENS LSV-100A

Ref. No.	Part No.	Description	Remark
ACCESORIES & PACKING MATERIALS			
*****			
*		1-751-538-11 CABLE, FLAT (0.5MM PITCH)	
*		1-951-471-11 HARNESS (EC-51)	
*		1-951-473-11 HARNESS (DC-57)	
*		1-951-475-11 HARNESS (VO-50)	
*		3-948-061-02 COVER, Z GEAR	
*****			

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

● Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## ● SEMICONDUCTORS

In each case,  $\mu$ :  $\mu$ , for example:

$\mu A$  .. :  $\mu A$ .     $\mu PA$  .. :  $\mu PA$ .

$\mu PB$  .. :  $\mu PB$ .     $\mu PC$  .. :  $\mu PC$ .     $\mu PD$  .. :  $\mu PD$ .

## ● CAPACITORS

$\mu F$ :  $\mu F$

## ● COILS

$\mu H$ :  $\mu H$

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
*	A-7063-822-A	VC-128P BOARD, COMPLETE	*****	C600	1-164-156-11	CERAMIC CHIP	0.1uF				
< BATTERY >											
BT901 1-528-330-11 BATTERY, LITHIUM (SECONDARY)											
< CAPACITOR >											
C353	1-135-340-11	TANTAL. CHIP	10uF	20%	16V	C601	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C354	1-137-307-11	FILM CHIP	470PF	2%	16V	C602	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C355	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C603	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C357	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C604	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C605	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C360	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	C608	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C361	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	C609	1-135-259-21	TANTALUM CHIP	15uF	20%	6.3V
C364	1-164-730-11	CERAMIC CHIP	0.0012uF	10%	50V	C610	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C365	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	C613	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C366	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C614	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C369	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C615	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C370	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C617	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C373	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C618	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C374	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C619	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C375	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C620	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C376	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C621	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C377	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C622	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C378	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	C623	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C380	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C624	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C381	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C625	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C384	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C626	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C385	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C627	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C386	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C628	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C387	1-165-178-11	CERAMIC CHIP	6.8uF		16V	C629	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C388	1-164-830-11	CERAMIC CHIP	1uF	22%	16V	C630	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C389	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C631	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C390	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C651	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C391	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C652	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C394	1-164-337-11	CERAMIC CHIP	2.2uF		16V	C654	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C396	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C655	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C397	1-164-506-11	CERAMIC CHIP	4.7uF		16V	C656	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C398	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C657	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
						C660	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
						C664	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
						C665	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
						C666	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
						C667	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
						C668	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
						C673	1-164-156-11	CERAMIC CHIP	0.1uF	25V	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
C674	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C925	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C675	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C927	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C678	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C928	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C679	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C930	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C680	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C970	1-126-191-11	ELECT	0.47uF	20%	50V	
C681	1-164-156-11	CERAMIC CHIP	0.1uF	25V	< CONNECTOR >						
C684	1-162-943-11	CERAMIC CHIP	15PF	5%	50V	* CN351	1-580-055-21	PIN, CONNECTOR 2P			
C685	1-162-974-11	CERAMIC CHIP	0.01uF	50V	CN601	1-691-475-21	CONNECTOR, BOARD TO BOARD 18P				
C686	1-162-946-11	CERAMIC CHIP	27PF	5%	CN651	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P				
C690	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	CN652	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P				
C691	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	CN654	1-580-789-21	PIN, CONNECTOR (SMD) 8P				
C701	1-162-995-11	CERAMIC CHIP	0.022uF	50V	CN901	1-573-929-11	CONNECTOR, FFC/FPC (ZIF) 20P				
C801	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	* CN902	1-750-502-11	PIN, CONNECTOR (1.5MM) (SMD) 3P			
C802	1-164-156-11	CERAMIC CHIP	0.1uF	25V	* CN903	1-580-056-21	PIN, CONNECTOR 3P				
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	< TRIMMER >					
C804	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	CT601	1-141-430-51	CAP, CHIP TRIMMER			
C805	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	< DIODE >					
C806	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	D351	8-719-027-77	DIODE MA796-TX			
C807	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D901	8-719-989-03	DIODE DAN222				
C808	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	D902	8-719-989-03	DIODE DAN222			
C809	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D903	8-719-025-87	DIODE RD8.2UM				
C810	1-162-995-11	CERAMIC CHIP	0.022uF	50V	D973	8-719-938-72	DIODE SB01-05CP				
C811	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	< FILTER >					
C812	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	FL651	1-239-352-11	FILTER, LOW PASS			
C813	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V	< IC >					
C814	1-164-373-11	CERAMIC CHIP	0.033uF	25V	IC351	8-759-060-94	IC MB3785APFV-G-BND-ER				
C815	1-164-361-11	CERAMIC CHIP	0.047uF	16V	IC601	8-752-327-48	IC CXD1250N				
C816	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	IC602	8-752-353-25	IC CXD1265R-T6			
C817	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	IC603	8-752-053-26	IC CXA1399Q			
C819	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	IC604	8-752-060-50	IC CXA1577R-T4			
C820	1-135-338-11	TANTAL. CHIP	220uF	20%	4V	IC651	8-759-044-78	IC AK6420F			
C821	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	IC653	8-759-197-31	IC SC40681BFUMC68HC11M2			
C822	1-135-338-11	TANTAL. CHIP	220uF	20%	4V	IC654	8-759-064-36	IC MB88346BPFV			
C823	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	IC656	8-759-262-36	IC CXD2133BR-T6			
C824	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	IC659	8-752-350-13	IC CXD2130R-T6			
C901	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC660	8-752-358-10	IC CXD2101BR-T6				
C902	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC801	8-752-053-21	IC CXA1211M				
C903	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V	IC802	8-752-009-51	IC CX20095A			
C904	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	IC901	8-759-044-78	IC AK6420F			
C906	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V	IC902	8-759-099-91	IC S-8420JF-T2			
C907	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	IC903	8-759-197-30	IC MB89092PFV-G-138A			
C908	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	IC904	8-759-059-05	IC TL1596CPW-ELM1000			
C909	1-164-156-11	CERAMIC CHIP	0.1uF	25V	IC905	8-759-064-36	IC MB88346BPFV				
C910	1-164-156-11	CERAMIC CHIP	0.1uF	25V							
C913	1-164-156-11	CERAMIC CHIP	0.1uF	25V							
C914	1-162-974-11	CERAMIC CHIP	0.01uF	50V							
C922	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V						
C923	1-164-361-11	CERAMIC CHIP	0.047uF	16V							
C924	1-164-361-11	CERAMIC CHIP	0.047uF	16V							

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
< COIL >											
L358	1-424-653-11	COIL, CHOKE 10uH		Q603	8-729-427-74	TRANSISTOR	XP4601				
L359	1-424-653-11	COIL, CHOKE 10uH		Q656	8-729-425-50	TRANSISTOR	2SB1462Q				
L360	1-424-674-11	COIL, CHOKE 22uH		Q657	8-729-425-50	TRANSISTOR	2SB1462Q				
L361	1-424-674-11	COIL, CHOKE 22uH		Q658	8-729-425-50	TRANSISTOR	2SB1462Q				
L362	1-424-675-11	COIL, CHOKE 33uH		Q659	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L363	1-412-027-11	INDUCTOR CHIP 2.2uH		Q800	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L366	1-412-033-11	INDUCTOR CHIP 220uH		Q801	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L367	1-412-033-11	INDUCTOR CHIP 220uH		Q802	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L368	1-412-027-11	INDUCTOR CHIP 2.2uH		Q803	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L369	1-412-028-11	INDUCTOR CHIP 4.7uH		Q804	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L371	1-412-028-11	INDUCTOR CHIP 4.7uH		Q805	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L372	1-412-026-11	INDUCTOR CHIP 1uH		Q806	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L373	1-412-026-11	INDUCTOR CHIP 1uH		Q807	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L600	1-412-991-11	INDUCTOR 10uH		Q808	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L601	1-412-991-11	INDUCTOR 10uH		Q809	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
L602	1-412-030-11	INDUCTOR 22uH		Q901	8-729-905-12	TRANSISTOR	DTA144EU				
L603	1-414-037-11	INDUCTOR 10uH		Q902	8-729-905-12	TRANSISTOR	DTA144EU				
L604	1-412-029-11	INDUCTOR CHIP 10uH		Q971	8-729-425-50	TRANSISTOR	2SB1462Q				
L651	1-412-991-11	INDUCTOR 10uH		Q972	8-729-905-18	TRANSISTOR	DTC144EU				
L653	1-414-078-11	INDUCTOR 10uH		< RESISTOR >							
L655	1-414-078-11	INDUCTOR 10uH		R351	1-216-837-11	METAL CHIP	22K 5% 1/16W				
L656	1-414-078-11	INDUCTOR 10uH		R352	1-218-707-11	METAL CHIP	4.3K 0.50% 1/16W				
L659	1-412-991-11	INDUCTOR 10uH		R353	1-216-842-11	METAL CHIP	56K 5% 1/16W				
L661	1-412-962-11	INDUCTOR 82uH		R354	1-216-837-11	METAL CHIP	22K 5% 1/16W				
L663	1-414-117-11	INDUCTOR 1uH		R357	1-216-841-11	METAL CHIP	47K 5% 1/16W				
L664	1-412-979-21	INDUCTOR 1uH		R360	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
L665	1-412-979-21	INDUCTOR 1uH		R361	1-218-736-11	METAL CHIP	68K 0.50% 1/16W				
L666	1-414-117-11	INDUCTOR 1uH		R362	1-218-714-11	METAL CHIP	8.2K 0.50% 1/16W				
L667	1-414-117-11	INDUCTOR 1uH		R363	1-216-834-11	METAL CHIP	12K 5% 1/16W				
L801	1-414-078-11	INDUCTOR 10uH		R364	1-218-721-11	METAL CHIP	16K 0.50% 1/16W				
L901	1-414-120-11	INDUCTOR 47uH		R365	1-216-847-11	METAL CHIP	150K 5% 1/16W				
< IC LINK >											
PS901	1-576-123-21	LINK, IC		R366	1-216-845-11	METAL CHIP	100K 5% 1/16W				
< TRANSISTOR >											
Q354	8-729-804-41	TRANSISTOR	2SB1122-S	R367	1-216-830-11	METAL CHIP	5.6K 5% 1/16W				
Q355	8-729-823-84	TRANSISTOR	FP102	R368	1-216-832-11	METAL CHIP	8.2K 5% 1/16W				
Q356	8-729-823-84	TRANSISTOR	FP102	R369	1-218-730-11	METAL CHIP	39K 0.50% 1/16W				
Q357	8-729-823-82	TRANSISTOR	FP101	R372	1-218-724-11	METAL CHIP	22K 0.50% 1/16W				
Q358	8-729-017-10	TRANSISTOR	2SJ244JY-TR	R373	1-218-727-11	METAL CHIP	30K 0.50% 1/16W				
Q360	8-729-428-88	TRANSISTOR	UN9113	R374	1-218-718-11	METAL CHIP	12K 0.50% 1/16W				
Q361	8-729-427-16	TRANSISTOR	RN2904-TE85L	R375	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
Q362	8-729-429-32	TRANSISTOR	UN9210-QRS	R378	1-216-832-11	METAL CHIP	8.2K 5% 1/16W				
Q363	8-729-427-46	TRANSISTOR	XP4213	R379	1-218-710-11	METAL CHIP	5.6K 0.50% 1/16W				
Q601	8-729-427-70	TRANSISTOR	XP4401	R382	1-216-864-11	METAL CHIP	0 5% 1/16W				
				R383	1-216-819-11	METAL CHIP	680 5% 1/16W				
				R384	1-218-720-11	METAL CHIP	15K 0.50% 1/16W				
				R387	1-218-704-11	METAL CHIP	3.3K 0.50% 1/16W				
				R390	1-216-845-11	METAL CHIP	100K 5% 1/16W				
				R391	1-216-041-00	METAL CHIP	470 5% 1/10W				
				R392	1-216-041-00	METAL CHIP	470 5% 1/10W				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R393	1-216-041-00	METAL CHIP	470 5% 1/16W	R695	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R394	1-216-041-00	METAL CHIP	470 5% 1/16W	R696	1-216-837-11	METAL CHIP	22K 5% 1/16W
R395	1-216-009-00	METAL CHIP	22 5% 1/16W	R697	1-216-821-11	METAL CHIP	1K 5% 1/16W
R396	1-216-845-11	METAL CHIP	100K 5% 1/16W	R698	1-216-821-11	METAL CHIP	1K 5% 1/16W
R397	1-216-821-11	METAL CHIP	1K 5% 1/16W	R699	1-216-817-11	METAL CHIP	470 5% 1/16W
R398	1-216-828-11	METAL CHIP	3.9K 5% 1/16W	R700	1-216-837-11	METAL CHIP	22K 5% 1/16W
R399	1-216-841-11	METAL CHIP	47K 5% 1/16W	R701	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R400	1-216-821-11	METAL CHIP	1K 5% 1/16W	R702	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R601	1-216-864-11	METAL CHIP	0 5% 1/16W	R703	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R603	1-216-833-11	METAL CHIP	10K 5% 1/16W	R704	1-216-818-11	METAL CHIP	560 5% 1/16W
R604	1-216-845-11	METAL CHIP	100K 5% 1/16W	R705	1-216-864-11	METAL CHIP	0 5% 1/16W
R608	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R801	1-216-833-11	METAL CHIP	10K 5% 1/16W
R609	1-218-721-11	METAL CHIP	16K 0.50% 1/16W	R802	1-216-821-11	METAL CHIP	1K 5% 1/16W
R610	1-218-692-11	METAL CHIP	1K 0.50% 1/16W	R803	1-216-833-11	METAL CHIP	10K 5% 1/16W
R611	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R804	1-216-809-11	METAL CHIP	100 5% 1/16W
R612	1-216-837-11	METAL CHIP	22K 5% 1/16W	R805	1-216-837-11	METAL CHIP	22K 5% 1/16W
R613	1-216-801-11	METAL CHIP	22 5% 1/16W	R806	1-216-837-11	METAL CHIP	22K 5% 1/16W
R614	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R807	1-216-818-11	METAL CHIP	560 5% 1/16W
R616	1-216-833-11	METAL CHIP	10K 5% 1/16W	R808	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R617	1-216-805-11	METAL CHIP	47 5% 1/16W	R809	1-216-817-11	METAL CHIP	470 5% 1/16W
R618	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R810	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R619	1-216-816-11	METAL CHIP	390 5% 1/16W	R811	1-216-815-11	METAL CHIP	330 5% 1/16W
R620	1-216-841-11	METAL CHIP	47K 5% 1/16W	R812	1-216-807-11	METAL CHIP	68 5% 1/16W
R641	1-216-845-11	METAL CHIP	100K 5% 1/16W	R813	1-216-813-11	METAL CHIP	220 5% 1/16W
R643	1-216-845-11	METAL CHIP	100K 5% 1/16W	R814	1-216-833-11	METAL CHIP	10K 5% 1/16W
R644	1-216-845-11	METAL CHIP	100K 5% 1/16W	R815	1-216-818-11	METAL CHIP	560 5% 1/16W
R645	1-216-821-11	METAL CHIP	1K 5% 1/16W	R816	1-216-817-11	METAL CHIP	470 5% 1/16W
R646	1-216-821-11	METAL CHIP	1K 5% 1/16W	R818	1-216-815-11	METAL CHIP	330 5% 1/16W
R647	1-216-821-11	METAL CHIP	1K 5% 1/16W	R819	1-216-821-11	METAL CHIP	1K 5% 1/16W
R652	1-216-857-11	METAL CHIP	1M 5% 1/16W	R820	1-216-865-11	METAL CHIP	3K 5% 1/16W
R653	1-216-864-11	METAL CHIP	0 5% 1/16W	R821	1-216-821-11	METAL CHIP	1K 5% 1/16W
R654	1-216-821-11	METAL CHIP	1K 5% 1/16W	R822	1-216-821-11	METAL CHIP	1K 5% 1/16W
R655	1-216-864-11	METAL CHIP	0 5% 1/16W	R823	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R656	1-216-805-11	METAL CHIP	47 5% 1/16W	R824	1-216-833-11	METAL CHIP	10K 5% 1/16W
R657	1-216-833-11	METAL CHIP	10K 5% 1/16W	R825	1-216-865-11	METAL CHIP	3K 5% 1/16W
R659	1-216-833-11	METAL CHIP	10K 5% 1/16W	R826	1-216-833-11	METAL CHIP	10K 5% 1/16W
R670	1-216-864-11	METAL CHIP	0 5% 1/16W	R827	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R671	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R828	1-216-833-11	METAL CHIP	10K 5% 1/16W
R672	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R829	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
R674	1-216-863-11	METAL GLAZE	3.3M 5% 1/16W	R830	1-216-807-11	METAL CHIP	68 5% 1/16W
R675	1-216-857-11	METAL CHIP	1M 5% 1/16W	R831	1-216-807-11	METAL CHIP	68 5% 1/16W
R679	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R832	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R680	1-216-864-11	METAL CHIP	0 5% 1/16W	R833	1-216-821-11	METAL CHIP	1K 5% 1/16W
R690	1-216-833-11	METAL CHIP	10K 5% 1/16W	R901	1-216-821-11	METAL CHIP	1K 5% 1/16W
R691	1-216-816-11	METAL CHIP	390 5% 1/16W	R915	1-216-845-11	METAL CHIP	100K 5% 1/16W
R692	1-216-816-11	METAL CHIP	390 5% 1/16W	R920	1-216-817-11	METAL CHIP	470 5% 1/16W
R693	1-216-834-11	METAL CHIP	12K 5% 1/16W	R926	1-216-841-11	METAL CHIP	47K 5% 1/16W
R694	1-216-834-11	METAL CHIP	12K 5% 1/16W	R929	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R930	1-216-845-11	METAL CHIP	100K 5% 1/16W

Ref. No.	Part No.	Description			Remark
R931	1-216-821-11	METAL CHIP	1K	5%	1/16W
R932	1-216-049-11	METAL CHIP	1K	5%	1/10W
R934	1-216-851-11	METAL CHIP	330K	5%	1/16W
R935	1-216-049-00	METAL CHIP	1K	5%	1/10W
R936	1-216-821-11	METAL CHIP	1K	5%	1/16W
R937	1-216-821-11	METAL CHIP	1K	5%	1/16W
R946	1-216-841-11	METAL CHIP	47K	5%	1/16W
R947	1-216-821-11	METAL CHIP	1K	5%	1/16W
R948	1-216-845-11	METAL CHIP	100K	5%	1/16W
R949	1-216-845-11	METAL CHIP	100K	5%	1/16W
R950	1-216-821-11	METAL CHIP	1K	5%	1/16W
R953	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R954	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R955	1-218-702-11	METAL CHIP	2.7K	0.50%	1/16W
R956	1-216-845-11	METAL CHIP	100K	5%	1/16W
R957	1-216-845-11	METAL CHIP	100K	5%	1/16W
R958	1-216-864-11	METAL CHIP	0	5%	1/16W
R959	1-216-841-11	METAL CHIP	47K	5%	1/16W
R960	1-216-809-11	METAL CHIP	100	5%	1/16W
R961	1-216-833-11	METAL CHIP	10K	5%	1/16W
R962	1-216-833-11	METAL CHIP	10K	5%	1/16W
R963	1-216-841-11	METAL CHIP	47K	5%	1/16W
R964	1-216-841-11	METAL CHIP	47K	5%	1/16W
R965	1-216-841-11	METAL CHIP	47K	5%	1/16W
R966	1-218-833-11	METAL CHIP	270	5%	1/16W
R967	1-218-684-11	METAL CHIP	470	0.50%	1/16W
R969	1-218-698-11	METAL CHIP	1.8K	0.50%	1/16W
R970	1-216-864-11	METAL CHIP	0	5%	1/16W

< NETWORK RESISTOR >

RB901	1-236-908-11	RESISTOR, NETWORK (CHIP TYPE)
RB902	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)
RB903	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)
RB904	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)
RB905	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)

< SWITCH >

S901 1-571-275-31 SWITCH, SLIDE

< TRANSFORMER >

T351 1-450-976-11 TRANSFORMER, CONVERTER

< VIBRATOR >

X601	1-579-621-11	VIBRATOR, CRYSTAL
X651	1-579-669-11	VIBRATOR, LITHIUM NIOBATE
X901	1-579-550-11	VIBRATOR, CRYSTAL

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			

XTL901 1-579-369-21 VIBRATOR

*	A-7071-933-A	CD-99P BOARD, COMPLETE
		*****

< CAPACITOR >

C721	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C722	1-128-013-11	ELECT CHIP	1uF	20%	50V
C723	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C724	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C725	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C726	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C727	1-128-004-11	ELECT CHIP	10uF	20%	16V
C728	1-126-607-11	ELECT CHIP	47uF	20%	4V
C729	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C730	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

CN721 1-573-372-21 CONNECTOR, BOARD TO BOARD 18P

< DIODE >

D721	8-719-421-71	DIODE	MA132WA
D722	8-719-421-69	DIODE	MA133-TX
D723	8-719-421-71	DIODE	MA132WA

< COIL >

L721 1-412-032-11 INDUCTOR CHIP 100uH

< TRANSISTOR >

Q721	8-729-425-64	TRANSISTOR	2SD2216Q
Q722	8-729-429-44	TRANSISTOR	XP1501
Q723	8-729-232-86	TRANSISTOR	2SK1875-BL/V
Q724	8-729-102-07	TRANSISTOR	2SC2223-F13

< RESISTOR >

R723	1-216-845-11	METAL CHIP	100K	5%	1/16W
R724	1-216-857-11	METAL CHIP	1M	5%	1/16W
R725	1-216-840-11	METAL CHIP	39K	5%	1/16W
R726	1-216-843-11	METAL CHIP	68K	5%	1/16W
R727	1-216-820-11	METAL CHIP	820	5%	1/16W
R728	1-216-845-11	METAL CHIP	100K	5%	1/16W
R729	1-216-835-11	METAL CHIP	15K	5%	1/16W
R730	1-216-850-11	METAL CHIP	270K	5%	1/16W
R731	1-216-833-11	METAL CHIP	10K	5%	1/16W
R732	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R733	1-216-809-11	METAL CHIP	100	5%	1/16W	C767	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
R734	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	C768	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
*****											
*	A-7053-823-A	FK-56P BOARD, COMPLETE	*****			C769	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
			< CONNECTOR >			C771	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
* CN101	1-750-502-11	PIN, CONNECTOR (1.5MM) (SMD) 3P	C772	1-164-156-11	CERAMIC CHIP	0.1uF	25V				
* CN102	1-580-756-21	PIN, CONNECTOR 7P	C773	1-162-974-11	CERAMIC CHIP	0.01uF	50V				
			C775	1-162-974-11	CERAMIC CHIP	0.01uF	50V				
			C776	1-162-974-11	CERAMIC CHIP	0.01uF	50V				
			C777	1-162-974-11	CERAMIC CHIP	0.01uF	50V				
			C778	1-164-156-11	CERAMIC CHIP	0.1uF	25V				
D101	8-719-026-39	DIODE CL-150UR-CD	C779	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V			
			C780	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V			
			C781	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V			
			< CONNECTOR >								
			CN751	1-573-935-11	CONNECTOR, FFC/FPC (ZIF) 26P						
			CN752	1-691-539-11	CONNECTOR, BOARD TO BOARD 30P						
			< IC >								
			IC751	8-752-841-66	IC CXP80624A-013R						
			IC752	8-752-355-56	IC CXD2104BN-T4						
			IC753	8-759-058-45	IC NJM3403AV(TE2)						
			IC754	8-759-058-41	IC NJM3416V(TE2)						
			IC755	8-759-059-03	IC LM324PW-ELL20						
			IC756	8-759-058-43	IC NJM3404AV(TE2)						
			IC757	8-759-058-41	IC NJM3416V(TE2)						
			IC758	8-759-058-47	IC MPC1724VM						
			< COIL >								
			L751	1-414-078-11	INDUCTOR 10uH						
			L752	1-412-991-11	INDUCTOR 10uH						
			L753	1-414-078-11	INDUCTOR 10uH						
			L754	1-414-078-11	INDUCTOR 10uH						
			L755	1-414-078-11	INDUCTOR 10uH						
			L756	1-412-991-11	INDUCTOR 10uH						
			< TRANSISTOR >								
			Q751	8-729-428-88	TRANSISTOR UN9113						
			Q752	8-729-425-64	TRANSISTOR 2SD2216Q						
			< RESISTOR >								
			R751	1-216-864-11	METAL CHIP	0	5%	1/16W			
			R752	1-216-857-11	METAL CHIP	1M	5%	1/16W			
			R753	1-218-720-11	METAL CHIP	15K	0.50%	1/16W			
			R754	1-218-720-11	METAL CHIP	15K	0.50%	1/16W			
			R755	1-218-680-11	METAL CHIP	330	0.50%	1/16W			
			R756	1-218-680-11	METAL CHIP	330	0.50%	1/16W			
			R757	1-216-835-11	METAL CHIP	15K	5%	1/16W			

Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark
R758	1-216-839-11	METAL CHIP	33K	5%	1/16W				MISCELLANEOUS
R759	1-216-839-11	METAL CHIP	33K	5%	1/16W				*****
R760	1-218-680-11	METAL CHIP	330	0.50%	1/16W				*****
R761	1-216-720-11	METAL CHIP	15K	0.50%	1/16W				1-547-529-21 FILTER BLOCK, OPTICAL
R762	1-216-827-11	METAL CHIP	3.3K	5%	1/16W				8-848-700-01 DEVICE, LENS LSV-100A
R763	1-216-837-11	METAL CHIP	22K	5%	1/16W				*****
R764	1-216-851-11	METAL CHIP	330K	5%	1/16W				*****
R765	1-216-821-11	METAL CHIP	1K	5%	1/16W				ACCESSORIES & PACKING MATERIALS
R766	1-216-821-11	METAL CHIP	1K	5%	1/16W				*****
R767	1-216-833-11	METAL CHIP	10K	5%	1/16W				1-751-538-11 CABLE, FLAT (0.5MM PITCH)
R768	1-216-833-11	METAL CHIP	10K	5%	1/16W				* 1-951-471-11 HARNESS (EC-51)
R769	1-216-837-11	METAL CHIP	22K	5%	1/16W				* 1-951-473-11 HARNESS (DC-57)
R770	1-216-848-11	METAL CHIP	180K	5%	1/16W				* 1-951-475-11 HARNESS (VO-50)
R771	1-216-833-11	METAL CHIP	10K	5%	1/16W				* 3-948-061-02 COVER, Z GEAR
R772	1-216-848-11	METAL CHIP	180K	5%	1/16W				*****
R773	1-216-821-11	METAL CHIP	1K	5%	1/16W				*****
R774	1-216-845-11	METAL CHIP	100K	5%	1/16W				*****
R775	1-216-841-11	METAL CHIP	47K	5%	1/16W				*****
R776	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R777	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R778	1-216-855-11	METAL CHIP	680K	5%	1/16W				*****
R779	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R780	1-216-845-11	METAL CHIP	100K	5%	1/16W				*****
R781	1-216-845-11	METAL CHIP	100K	5%	1/16W				*****
R782	1-216-845-11	METAL CHIP	100K	5%	1/16W				*****
R783	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R784	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R785	1-216-820-11	METAL CHIP	820	5%	1/16W				*****
R786	1-216-845-11	METAL CHIP	100K	5%	1/16W				*****
R787	1-216-841-11	METAL CHIP	47K	5%	1/16W				*****
R788	1-216-826-11	METAL CHIP	2.7K	5%	1/16W				*****
R789	1-216-857-11	METAL CHIP	1M	5%	1/16W				*****
R790	1-216-857-11	METAL CHIP	1M	5%	1/16W				*****
R791	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R792	1-216-833-11	METAL CHIP	10K	5%	1/16W				*****
R793	1-216-821-11	METAL CHIP	1K	5%	1/16W				*****
R794	1-216-821-11	METAL CHIP	1K	5%	1/16W				*****
R796	1-216-864-11	METAL CHIP	0	5%	1/16W				*****
< NETWORK RESISTOR >									
RB751	1-236-428-11	NETWORK, RES 22K							
RB752	1-236-424-11	NETWORK, RES 10K							
RB754	1-236-432-11	NETWORK, RES 47K							
< VIBRATOR >									
X751	1-579-553-11	VIBRATOR							
*****									

5-5. EVI-310/311 Different Parts List for Mounting

PCB	Ref.	NTSC(EVI-130)	PAL(EVI-131)	
VC-128	C665	No M't	10 $\mu$ /6.3V Ta.	1-135-259-11
	C667	No M't	0.1 $\mu$ B	1-164-004-11
	C684	27P 1-162-946-11	15P	1-162-943-11
	L661	68 $\mu$ 1-412-961-11	82 $\mu$	1-412-962-11
	R601	No M't	0 $\Omega$	1-216-864-11
	R655	No M't	0 $\Omega$	1-216-864-11
	R674	No M't	3.3M	1-216-863-11
	R675	No M't	1M	1-216-857-11
	R676	0 $\Omega$ 1-216-864-11	No M't	
	R677	0 $\Omega$ 1-216-864-11	No M't	
	R678	0 $\Omega$ 1-216-864-11	No M't	
	R679	No M't	2.2K	1-216-825-11
	R680	No M't	0 $\Omega$	1-216-864-11
	R699	1.5K 1-216-823-11	470 $\Omega$	1-216-817-11
LD-62	R704	680 $\Omega$ 1-216-819-11	560 $\Omega$	1-216-818-11
	R807	680 $\Omega$ 1-216-819-11	560 $\Omega$	1-216-818-11
	X601	28.6363Mz 1-579-619-11	28.375Mz	1-579-621-11
LD-62	R795	0 $\Omega$ 1-216-864-11	No M't	
	R796	No M't	0 $\Omega$	1-216-864-11

**BLANC**

## 6. LIST OF SERVICE TOOLS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from next page.

### PREPARATIONS BEFORE ADJUSTMENT

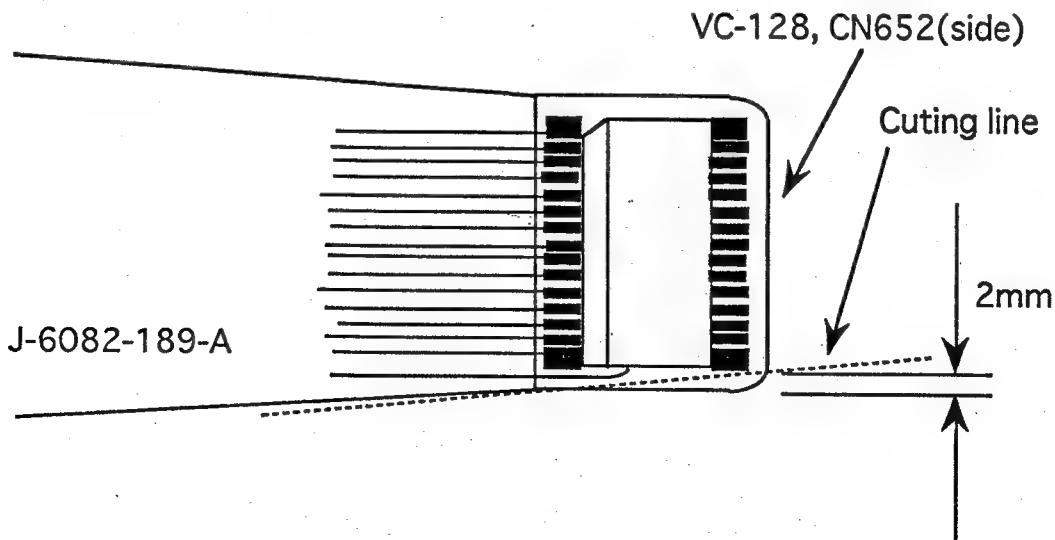
#### List of Service Tools

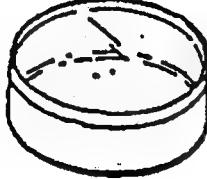
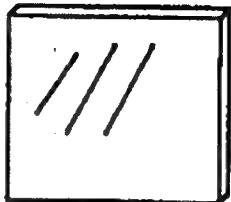
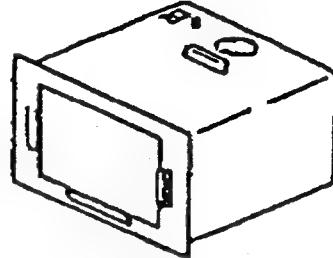
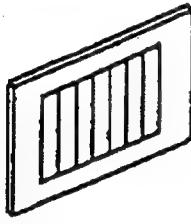
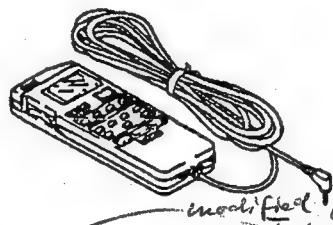
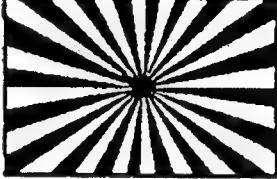
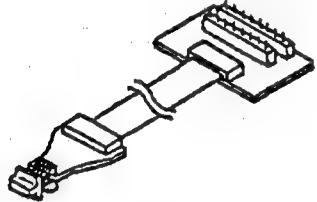
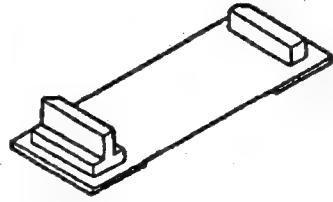
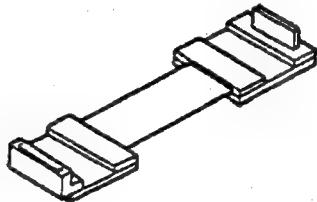
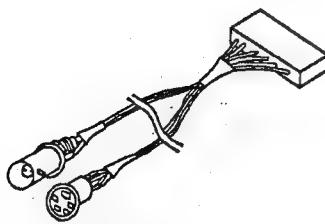
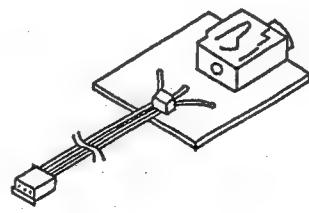
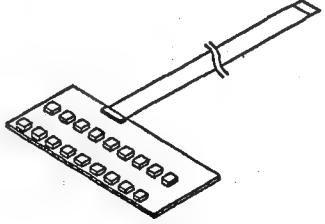
- Oscilloscope
- Regulated power supply
- Vectorscope
- Adjusting driver
- Color monitor
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction(C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander <sup>Note 1</sup> (RM-95-remodeled partly)	J-6082-053-B	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Measuring pin tool for camera section	J-6082-139-A	For adjusting the camera section
J-8	Extension cable(30P,0.8mm) <sup>Note 2</sup>	J-6082-189-A	For extension between the LD-62 board (CN752) and VC-128 board (CN652)
J-9	Extension cable(18P,0.8mm)	J-6082-170-A	For extension between the CD-99 board (CN721) and VC-128 board (CN601)
J-10	Video / S video out cable	J-6082-293-A	For checking the video signal
J-11	Extension cable 3	J-6082-291-A	For adjusting remote commander (J-5)
J-12	FK-57 board	J-6082-292-A	For function check

Note 1: If the processor IC in the adjusting remote commander is not the new microprocessor(UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor(8-759-148-35).

Note 2: Preparation before used



J-1  J-6080-058-A	J-2  J-6080-808-A J-6080-818-A	J-3  J-6082-200-A
J-4  J-6020-250-A	J-5 <i>bew SEC order</i>  modified for Techno-People J-6082-053-B Sparsel kart	J-6  J-6080-875-A
J-7  J-6082-139-A	J-8  J-6082-189-A	J-9  J-6082-170-A
J-10  J-6082-293-A	J-11 <i>auch order</i> Adapter  J-6082-291-A	J-12  J-6082-292-A

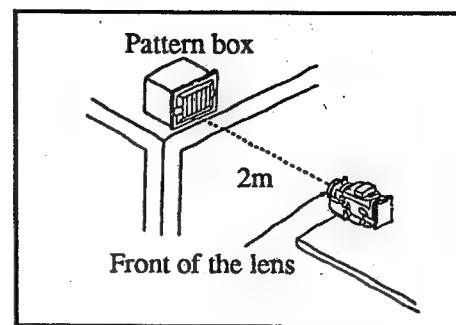
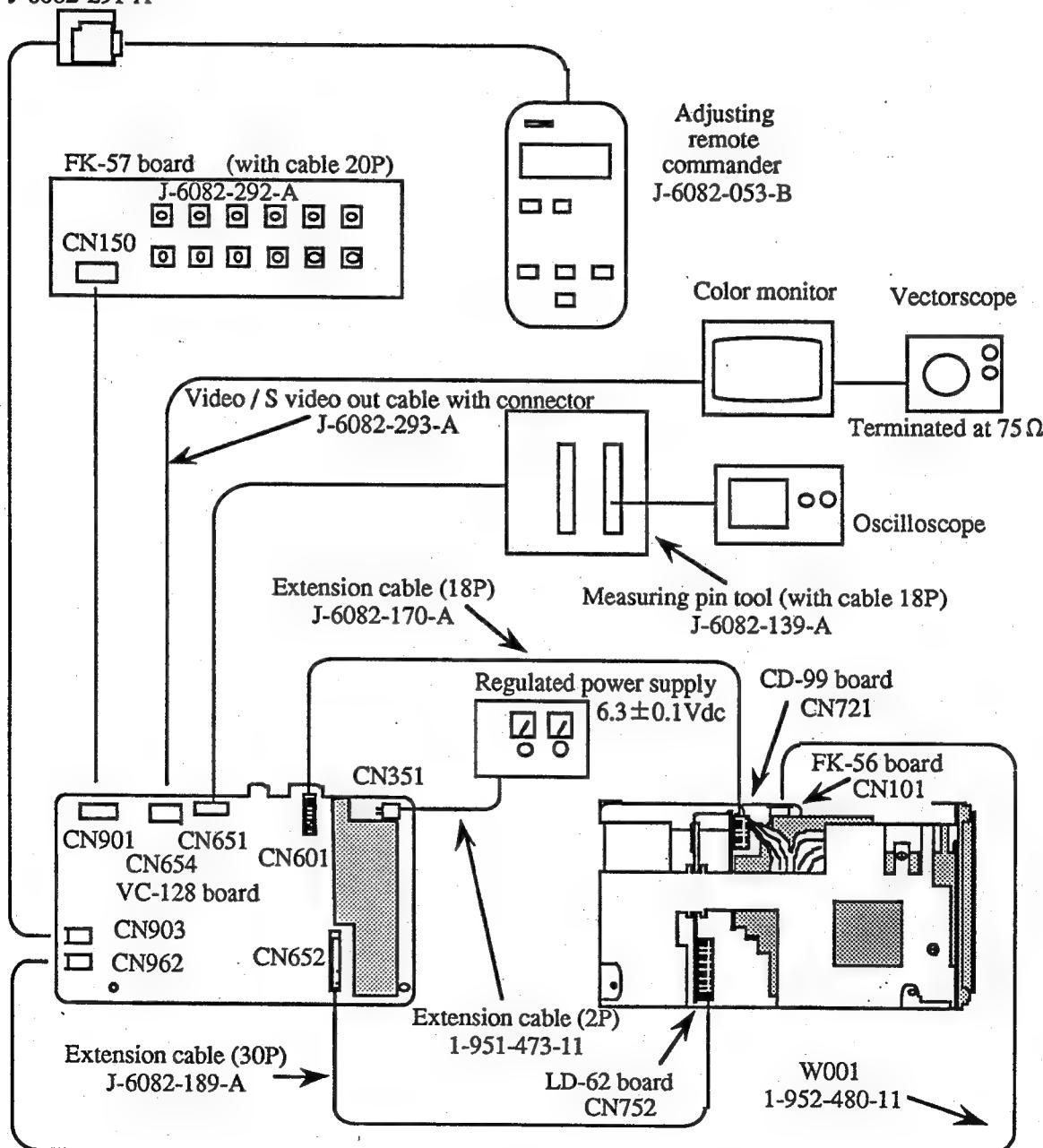
## 7. ADJUSTMENTS

### 7-1-1. Preparation

Note : When adjusting only, the lens block and VC-128 board need not be taken apart.

Connect the equipments for adjusting as follows.

Extension cable 3  
for adjusting (3P)  
J-6082-291-A



## 7-1-2. Precautions

### 1. Switch settings

Adjust the back up switch is OFF (VC-128 board S901) to the following positions, and adjust a, unless specified otherwise.

### 2. Adjusting Procedure

Adjust in the given order.

### 3. Subject

#### 1) Color bar chart (Standard picture frame)

Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.  
(Standard picture frame)

#### 2) White pattern (Standard picture frame)

Remove the color bar chart from the pattern box, and adjust the zoom lever so that the white pattern is the same size and at the same position as the color bar chart (Standard picture frame).

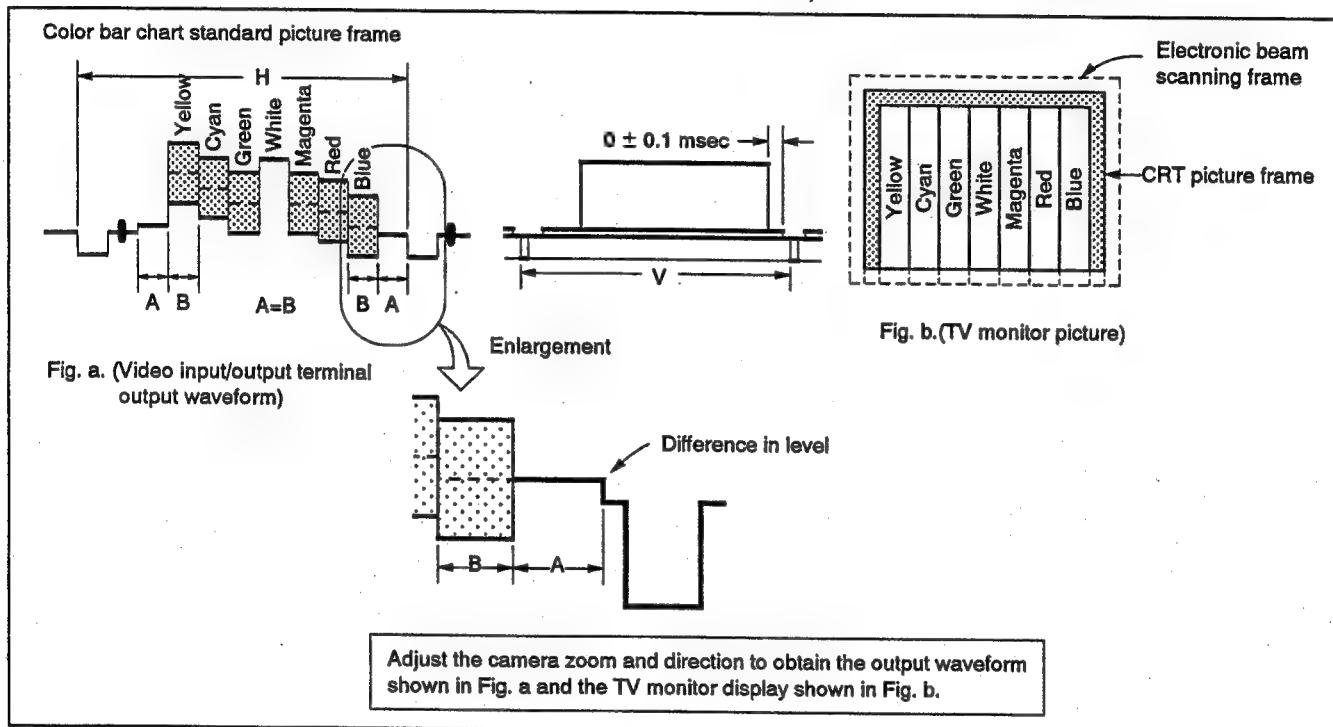


Fig. 7-4.

### 3) Chart for flange back adjustment

Combine a white A0 size (1189 mm × 841 mm) imitation Japanese vellum to a black one, and make the chart shown in Fig. 4-5.

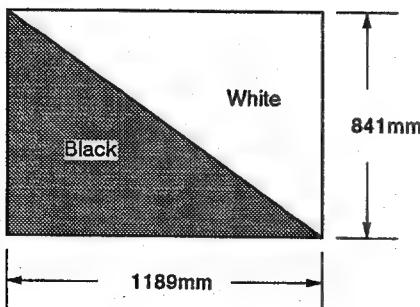


Fig. 7-5.

**Note:** Use non-reflecting and matted imitation Japanese vellum that are above A0. When making the chart, make sure that the line between the black and white is even.

### 7-1-3. Adjusting Remote Commander

Adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC-128 board IC654, 905). This is controlled by the camera micro processor (VC-128 board IC653, 903), which reads the data written in the nonvolatile memory (VC-128 board IC651, 901: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

#### 1. Using the adjusting remote commander

- 1) Connect the adjusting remote commander to the ECCP terminal (VC-128 board CN903).
- 2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-6.

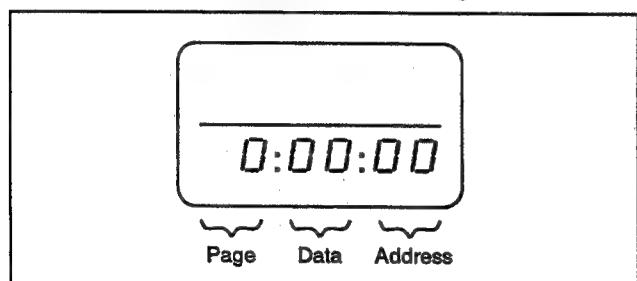


Fig. 7-6.

- 3) Operate the adjusting remote commander as follows.

- Changing the page

The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 7-1.

- Changing the address

The address increases when the FF (►►) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.

- Changing the data (Data setting)

The data increases when the PLAY (►►) button is pressed, and decreases when the STOP (■■) button is pressed.

There are altogether 256 data, from 00 to FF.

- Writing the adjustment data

The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.  
(The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)

- 4) Select page:6, address:00, and set the data to 01. The write protect of page F will be released. (Addresses:01 to DF on page F.)  
Select page:1, address:00, and set the data to 01. The write protect of page D will be released.  
The adjustment can now be performed.
- 5) After completing all adjustments, turn off the main power supply (6.3V) once. This releases the adjustment mode (other than page F).

#### 2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

#### 7-1-4. Page F Address List

- Note 1:** The data already listed in the adjustment data memo column are fixed values.
- Note 2:** The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.
- Note 3:** The < > contains the initial data for AF micro processor versions 1 and 2. Refer to "Page F Data Input" for how to distinguish these versions.

**Note 4:** The ( ) contains the initial data for camera microprocessor versions 1 and 2. Refer to "F Page Data Modifications" for how to distinguish these versions.

**Note 5:** In some cases, data have been input to the page F addresses D0 to EF. This has no relation to the adjustments.

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data							
			Initial value	Memo column						
00	SET ID	Set ID	00	3F (NTSC) 4F (PAL)						
01	NT PAL	Note 3	20	20 (NTSC) 21 (PAL)						
02	FT SW	DDS display mode switching <table border="1"> <tr> <th>Data</th> <th>Mode</th> </tr> <tr> <td>00</td> <td>Normal</td> </tr> <tr> <td>B8</td> <td>Focus position adjustment</td> </tr> </table>	Data	Mode	00	Normal	B8	Focus position adjustment	00	00
Data	Mode									
00	Normal									
B8	Focus position adjustment									
03	FADER LEVEL	Not used	E0	E0						
04	FADER ENDTIM	Not used	10	10						
05	CORE Y GAIN		3F	3C						
06	VSUB	CCD imager V SUB voltage adjustment [IC654 ③]	80							
07	VPGH	CCD imager PG voltage adjustment [IC654 ④]	80							
08	VREF Y	Camera core Y D/A reference voltage, SYNC level adjustment [IC654 ⑤]	7D							
09	VREF C	Camera core camera D/A reference voltage, burst level adjustment [IC654 ⑥]	61							
0A	HALL GAIN	Hall amplifier gain adjustment [IC654 ⑦]	80							
0B	HALL OFFSET	Hall amplifier off set adjustment [IC654 ⑧]	80							
0C	LOWLIGHT START	Low illuminance level modulation start setting	6A	6A						
0D	REF 2V	2V reference voltage for hall element [IC654 ⑫]	68	68						
0E	AD REF	Black level during A/D conversion [IC654 ⑬]	A0	A0						
0F	CORE DETH	CCD correction horizontal correlated control	04	04						
10	CORE OTHER	Various camera core mode settings	54	54						
11	CORE APCN4	Horizontal aperture setting	B5	B5						
12	CORE APCN5	Vertical aperture setting	3F	3F						
13	CORE EFFECT	Camera core special effects control	A0	A0						
14	CORE MATR	RED matrix constant	6D	6D						
15	CORE MATB	BLUE matrix constant	26	26						
16	CORE BURST LEVEL	Burst level setting, color modulation ON/OFF <table border="1"> <tr> <th>Data</th> <th>Mode</th> </tr> <tr> <td>2C</td> <td>Normal</td> </tr> <tr> <td>2E</td> <td>Color modulation stopped</td> </tr> </table>	Data	Mode	2C	Normal	2E	Color modulation stopped	2C	38
Data	Mode									
2C	Normal									
2E	Color modulation stopped									
17	CORE CHROMA DLY	Y/C delay adjustment	2A	2C (NTSC) 2D (PAL)						
18	CORE Y SETUP	Set up level setting	04	04						
19	CORE VHAPCN	Slice and level of aperture signal	16	16						

Table 7-2 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
1A	CORE B Y3200 HUE	B-Y HUE	FA	F0
1B	CORE R Y3200 HUE	R-Y HUE	F1	
1C	CORE R Y3200 GAIN	R-Y GAIN	48	
1D	CORE B Y3200 GAIN	B-Y GAIN	22	22
1E	CS APCCUT	Low illuminance aperture and chroma suppress level	22	22
1F	NEXT DEF BIT	CCD imager correction pattern	00	
20	CCD DEFECT0	CCD imager correction data	00	
21	CCD DEFECT1	CCD imager correction data	00	
22	CCD DEFECT2	CCD imager correction data	00	
23	CCD DEFECT3	CCD imager correction data	00	
24	CCD DEFECT4	CCD imager correction data	00	
25	CCD DEFECT5	CCD imager correction data	00	
26	CCD DEFECT6	CCD imager correction data	00	
27	CCD DEFECT7	CCD imager correction data	00	
28	CCD DEFECT8	CCD imager correction data	00	
29	CCD DEFECT9	CCD imager correction data	00	
2A	CCD DEFECT10	CCD imager correction data	00	
2B	CCD DEFECT11	CCD imager correction data	00	
2C	CCD DEFECT12	CCD imager correction data	00	
2D	CCD DEFECT13	CCD imager correction data	00	
2E	CCD DEFECT14	CCD imager correction data	00	
2F	CLPFLG	Digital clamp mode setting	00	00
30	ADMIN	Offset minimum value setting	50	50
31	C SHIFT	C shift amount setting	02	02
32	Y SHIFT	Y shift amount setting	02	02
33	LOWLIGHT START2	Low illuminance REF level modulation start setting 2	80	80
34	LOWLIGHT CS	Low illuminance color erasure setting	80	80
35	LOWLIGHT LEVEL		F0	F0
36	DEFECT DELAY		00	00
37			00	00
38	R3200 H	3200k Red reference data H	9D	
39	R3200 L	3200k Red reference data L	09	
3A	B3200 H	3200k Blue reference data H	56	
3B	B3200 L	3200k Blue reference data L	CF	
3C	G3200 H	3200k Green reference data H	7A	
3D	G3200 L	3200k Green reference data L	8E	
3E	RCONTREF	3200k RCONT adjustment value	31	
3F	BCONTREF	3200k BCONT adjustment value	2D	
40	NORM R	R regular correction coefficient, reference 80h	8F	
41	NORM B	B regular correction coefficient, reference 40h	6C	
42	SHUT IN	Indoor determination shutter data	A8	A8
43	SHUT OUT	Outdoor determination shutter data	A0	A0
44	IRIS IN	Indoor determination hall data	7D	
45	IRIS OUT	Outdoor determination hall data	85	

Table 7-2 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data									
			Initial value	Memo column								
46	G LEVEL	High luminance Green integral level	02	02								
47	G WIDTH	High luminance Green integral level range	03	03								
48	MAT HUE	Variable linear matrix HUE coefficient	00									
49	MAT GAIN	Variable linear matrix GAIN coefficient	00									
4A	ADJ RCONT		35	35								
4B	B DIFFERENCE	Reference difference from outdoor fixed value	0A	0A								
4C	BOTTOM SLP R	Slant R coefficient of drawing frame bottom	30	30								
4D	BOTTOM SLP B	Slant B coefficient of drawing frame bottom	58	58								
4E	MIDDLE SLP R	Slant R coefficient of drawing frame middle	62	62								
4F	MIDDLE SLP B	Slant B coefficient of drawing frame middle	47	47								
50	TOP SLP R	Slant R coefficient of drawing frame top	6C	6C								
51	TOP SLP B	Slant B coefficient of drawing frame top	1A	1A								
52	KEIKO R	Slant R coefficient of drawing frame fluorescent lamp	66	66								
53	KEIKO B	Slant B coefficient of drawing frame fluorescent lamp	18	18								
54	BOTTOM UP	Upper value of drawing frame bottom	8C	8C								
55	BOTTOM DWN	Lower value of drawing frame bottom	6B	6B								
56	MIDDLE UP	Upper value of drawing frame middle	B8	B8								
57	MIDDLE DWN	Lower value of drawing frame middle	9F	9F								
58	TOP UP	Upper value of drawing frame top	80	80								
59	TOP DWN	Lower value of drawing frame top	66	66								
5A	KEIKO	Lower value of output frame fluorescent lamp output	6C	6C								
5B	KEIKO DWN	Lower value of drawing frame fluorescent lamp	5C	5C								
5C	R TOP LMT	Upper value of drawing frame R	6C	6C								
5D	R DWN LMT	Lower value of drawing frame R	20	20								
5E	B TOP LMT	Upper value of drawing frame B	83	83								
5F	B IN TOP	Upper value of INDOOR drawing frame B	67	67								
60	B IN MAX	Upper value of INDOOR output frame B	5C	5C								
61	B OUT MIN	Lower value of OUTDOOR output frame B	5C	5C								
62	B OUT DWN	Lower value of OUTDOOR drawing frame B	4A	4A								
63	B DWN LMT	Lower value of drawing frame B	20	20								
64	ADJ BCONT		50	50								
65	T M DIVID	Border between top and middle of drawing frame	5B	5B								
66	B M DIVID	Border between middle and bottom of drawing frame	3C	3C								
67	DELAY TIME	Auto white balance tracking speed <table border="1"> <tr><th>Data</th><th>Mode</th></tr> <tr><td>10</td><td>Normal</td></tr> <tr><td>01</td><td>High speed drawing</td></tr> </table>	Data	Mode	10	Normal	01	High speed drawing	10	10		
Data	Mode											
10	Normal											
01	High speed drawing											
68	B IN MIN	INDOOR output frame B bottom	33	33								
69	OUT HYS OFF	OUTDOOR hysteresis off difference	0C	0C								
6A	OUT B HYS	OUTDOOR hysteresis amount	06	06								
6B	AWB MODE	Auto white balance adjustment mode <table border="1"> <tr><th>Data</th><th>Mode</th></tr> <tr><td>00</td><td>Normal</td></tr> <tr><td>D0</td><td>AWB adjustment</td></tr> <tr><td>F1</td><td>AWB all tracking</td></tr> </table>	Data	Mode	00	Normal	D0	AWB adjustment	F1	AWB all tracking	00	00
Data	Mode											
00	Normal											
D0	AWB adjustment											
F1	AWB all tracking											

Table 7-2 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
6C	IN B HYS		04	04
6D	IN R HYS		02	02
6E	KAKE NORM R		20	20
6F	KAKE NORM B		40	40
70	AE FUNCTION1	bit : 0 AE lock OFF/ON bit : 1 Flicker reduction ON/OFF bit : 2 FADER correction ON/OFF bit : 3 Low light level correction ON/OFF bit : 4 FUZZY iris control ON/OFF bit : 5 Phase correction ON/OFF bit : 6 ZOOM correction ON/OFF bit : 7 Auto shutter OFF/ON	00	00
71	FUNCTION2	bit : 2 EV correction function OFF/ON bit : 3 EV correction gain stop 3 dB/1.5 dB bit : 4 High-light picture correction OFF/ON	04	04
72	AE REF H	AE reference data (High)	1B	1B
73	HIGHLIT LEVEL	High-light level modulation	00	00
74	MIN	AGC gain position	2F	
75	AGC MIN	AGC gain position	C1	C1
76	IRIS MIN H	Auto shutter data (Iris limiter (H))	40	40
77	MAX	AE level MAX limiter	A0	A0
78	YAKEI LEVEL	Night scene mode AGC MAX limiter	40	40
79	JITEISU DOWN	Loop response time constant (CLOSE end)	30	30 (NTSC) 28 (PAL)
7A	JITEISU UP	Loop response time constant (OPEN end)	10	10 (NTSC) 0D (PAL)
7B	ORETEN SET	Change point of time constant due to error data	13	13
7C	OMOMIWAKU0	Weighting due to three-frame setup (upper)	40	40
7D	OMOMIWAKU1	Weighting due to three-frame setup (surround)	FF	FF
7E	AFC WIDE	Coefficient on ANF integrator loop	03	03
7F	AFC GAIN	ANF loop gain	01	01
80	AFC LIMIL	ANF error data limiter	60	60
81	DELTA GAIN	Gain smoothing data	08	08
82	ZOOM DROP1	Correction for lens incident light (W-center)	4B	4B
83	ZOOM DROP2	Correction for lens incident light (center -T)	60	60
84	HIST P KEISU	Setup data for FUZZY HIST extraction (P)	40	40
85	HIST H KEISU	Setup data for FUZZY HIST extraction (H)	E0	E0
86	HIST L KEISU	Setup data for FUZZY HIST extraction (L)	90	90
87	JITEISU	Response time constant to FUZZY iris control	08	08
88	BAIRITSU P	Multiplication setup on Hist P	80	80
89	FUZZY DATA1	Correction data for FUZZY iris control 1	90	90
8A	FUZZY DATA2	Correction data for FUZZY iris control 2	C0	C0
8B	FUZZY DATA3	Correction data for FUZZY iris control 3	B0	B0
8C	FUZZY DATA4	Correction data for FUZZY iris control 4	A0	A0
8D	FUZZY DATA5	Correction data for FUZZY iris control 5	80	80

Table 7-2 (4).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
8E	FUZZY DATA6	Correction data for FUZZY iris control 6	A0	A0
8F	FUZZY DATA7	Correction data for FUZZY iris control 7	98	98
90	FUZZY DATA8	Correction data for FUZZY iris control 8	90	90
91	FUZZY DATA9	Correction data for FUZZY iris control 9	60	60
92	FUZZY DATA10	Correction data for FUZZY iris control 10	40	40
93	HIGHLIT START	Start setup for high-light scene modulation	00	00
94	HIGHLIT END	Start setup for high-light scene modulation	00	00
95	IRIS OFFSET	Iris table gain offset.	28	28
96	IRIS PWM BIAS	Iris PWM bias adj.	FA	FA
97	AGC AMP BIAS	AGC amp bias adj.	00	00
98		Not used	00	00
99	ZOOM LANC SPEED	LANC zoom speed bit: 1 LANC standard, bit: 2 LANC High	02	04
9A	AF FT SW	Impose tool display switching	00	00
9B	MAN CONTROL	Manual focus variable bit-3 threshold bit-7 sensitivity	33	33
9C	AF MODE SW	Test SW	00	00
9D	OFF FC	Focus offset lower	00	
9E	OFF FC	Focus offset upper	2C	
9F	LENZ WIDE	Zoom wide end lower	00	
A0	LENZ WIDE	Zoom wide end upper	01	
A1	LENZ TELE	Zoom tele end lower	E0	
A2	LENZ TELE	Zoom tele end upper	02	
A3	MF SPEED	Manual focus gain	0E	0E
A4	ZM SPEED10	Zoom speed	00	00
A5	ZM SPEED32	Zoom speed	00	00
A6	ZM SPEED54	Zoom speed	55	55
A7	ZM SPEED76	Zoom speed	55	55
A8	ZM HYS	Zoom speed hysteresis	00	00
A9	Z PHASE	Focus mechanism end, flange back adjustment	08	
AA	FCLIM	Focus NEAR limit	00	00
AB	ADJ0	For adjusting (ZOOM OFF MODE)		
		Data	Mode	
		FE	Normal	
		01	Zoom position fixed	
AC	ADJ1	For adjusting (WND A)	1E	1E
AD	ADJ2	For adjusting (WND B)	5A	5A
AE	ADJ3	For adjusting	00	00
AF	AF0	Noise threshold	55	55
B0	AF1	Focus motor movement amount	12	12
B1	AF2	Core ring amount	04	04
B2	AF3	Noise level	30	30
B3	AF4	Climbing threshold	30	30
B4	AF5	Wobbling amplitude	55	55
B5	AF6	Wobbling IIR coefficient	03	03
B6	AF7	Sync detection phase	01	01

Table 7-2 (5).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
B7	AF8	Focus trigger phase	1C	1C (NTSC) 23 (PAL)
B8	AF9	Wobbling FIR coefficient	03	03
B9	AF10	AF speed threshold	18	18
BA	AF11	Wobbling amplitude for testing	00	00
BB	AF12	High luminance gate level	FA	FA
BC	AF13	Motor speed for testing	FF	FF
BD	AF14	AF frame for testing	00	00
BE	AF15	AGC gain 0 to 3V	0A	0A
BF	AF16	AGC gain 3 to 5V	10	10
C0	AF17	AND for testing	FF	FF
C1	AF18	AF ID for testing	00	00
C2	AF19	Hall data CLOSE	A8	A8
C3	AF20	Hall data MIDDLE	9A	9A
C4	AF21	Hall data OPEN	7F	7F
C5	AF22	High luminance threshold bit 7-4 HBO bit3-0 fH	84	84
C6	LINEAR0	Linear motor integral gain, Note 3	02	02
C7	LINEAR1	Linear motor DC bias value	04	04
C8	LINEAR2	DC bias speed THR	20	20
C9	LINEAR3	Linear motor integral THR lower	18	18
CA	LINEAR4	Reset THR	98	98
CB	LINEAR5	Error amount THR	20	20
CC	LINEAR6	Speed THR	20	20
CD	LINEAR7	Linear motor proportionate gain	DA	DA
CE	LINEAR8	MR output THR	3C	3C
CF	LINEAR9	Micro step number	06	06 (NTSC) 07 (PAL)
D0-EF		Not used (Note 5)	FF	FF
F0		Column for inputting unit's ID No, etc. Not related to unit's operations.	FF	
F1			FF	
F2			FF	
F3			FF	
F4			FF	
F5			FF	
F6			FF	
F7			FF	
F8			FF	
F9			FF	
FA			FF	
FB			FF	
FC			FF	
FD			FF	
FE			FF	
FF			FF	

Table 7-2 (6).

## 7-1-5. Page D address list

The data written in the adjustment data memo column are fixed.

Address	Name	Function	Adjustment data	
			Initial value	Memo column
00		Not used	00	00
01	NTSC/PAL (8L)	V. time (NTSC/PAL) selection for IC903	00	00 (NTSC) 01 (PAL)
02		Not used	00	00
03	NTSC/PAL (SG)	System (NTSC/PAL) selection for IC660	01	01 (NTSC) 03 (PAL)
04		Not used	00	00
05		Not used	00	00
06		Not used	00	00
07		Not used	00	00
08		Not used	00	00
09		Not used	00	00
0A		Not used	00	00
0B	Mute times	Mute times adjustment	40	40
0C	D/A 1ch	Y/C mix , Y level adjustment	80	
0D	D/A 2ch	Y/C mix , C level adjustment	80	
0E	D/A 3ch	Not used	00	00
0F	D/A 4ch	Not used	00	00
10	D/A 5ch	Not used	00	00
11	AE mode	AE modes on/off	00	00
12	AE modes	AE modes selection	00	02
13	Exposure	Exposure control	00	00
14	Shutter	Shutter control	00	04
15	AE mode hold	Not used	00	00
16	Iris	Iris control	00	00
17	Gain	Gain control	00	00
18	Bright	Bright control	00	00
19	WB mode	WB modes on/off	00	00
1A	WB modes	WB modes selection	00	00
1B	One push WB	One push WB trigger	00	00
1C	AF mode	AF mode on/off (No.1~No.6)	00	00
1D		Not used	00	00
1E	Zoom No.1 L	Zoom position No.1 lower	00	00
1F	Zoom No.1 H	Zoom position No.1 upper	01	01
20	Focus No.1 L	Focus position No.1 lower	00	00
21	Focus No.1 H	Focus position No.1 upper	02	02
22	Zoom No.2 L	Zoom position No.2 lower	00	00
23	Zoom No.2 H	Zoom position No.2 upper	01	01
24	Focus No.2 L	Focus position No.2 lower	00	00
25	Focus No.2 H	Focus position No.2 upper	02	02
26	Zoom No.3 L	Zoom position No.3 lower	00	00
27	Zoom No.3 H	Zoom position No.3 upper	01	01
28	Focus No.3 L	Focus position No.3 lower	00	00
29	Focus No.3 H	Focus position No.3 upper	02	02
2A	Zoom No.4 L	Zoom position No.4 lower	00	00

2B	Zoom No.4 H	Zoom position No.4 upper	01	01
2C	Focus No.4 L	Focus position No.4 lower	00	00
2D	Focus No.4 H	Focus position No.4 upper	02	02
2E	Zoom No.5 L	Zoom position No.5 lower	00	00
2F	Zoom No.5 H	Zoom position No.5 upper	01	01
30	Focus No.5 L	Focus position No.5 lower	00	00
31	Focus No.5 H	Focus position No.5 upper	02	02
32	Zoom No.6 L	Zoom position No.6 lower	00	00
33	Zoom No.6 H	Zoom position No.6 upper	01	01
34	Focus No.6 L	Focus position No.6 lower	00	00
35	Focus No.6 H	Focus position No.6 upper	02	02
36	Preset on/off	Preset active on/off (No.1~No.6)	00	00
37		Not used	01	01
38	AE modes No.1	AE modes selection No.1	00	00
39	Iris / gain No.1	Iris / gain control No.1	02	02
3A	Shutter No.1	Shutter control No.1	00	00
3B	Exposure No.1	Exposure control No.1	01	01
3C	AE modes No.2	AE modes selection No.2	00	00
3D	Iris / gain No.2	Iris / gain control No.2	02	02
3E	Shutter No.2	Shutter control No.2	00	00
3F	Exposure No.2	Exposure control No.2	01	01
40	AE modes No.3	AE modes selection No.3	00	00
41	Iris / gain No.3	Iris / gain control No.3	02	02
42	Shutter No.3	Shutter control No.3	00	00
43	Exposure No.3	Exposure control No.3	01	01
44	AE modes No.4	AE modes selection No.4	00	00
45	Iris / gain No.4	Iris / gain control No.4	02	02
46	Shutter No.4	Shutter control No.4	00	00
47	Exposure No.4	Exposure control No.4	00	00
48	AE modes No.5	AE modes selection No.5	00	00
49	Iris / gain No.5	Iris / gain control No.5	20	20
4A	Shutter No.5	Shutter control No.5	00	00
4B	Exposure No.5	Exposure control No.5	00	00
4C	AE modes No.6	AE modes selection No.6	00	00
4D	Iris / gain No.6	Iris / gain control No.6	20	20
4E	Shutter No.6	Shutter control No.6	00	00
4F	Exposure No.6	Exposure control No.6	00	00
50	WB modes No.1	WB modes selection No.1	00	00
51	WB modes No.2	WB modes selection No.2	20	20
52	WB modes No.3	WB modes selection No.3	00	00
53	WB modes No.4	WB modes selection No.4	00	00
54	WB modes No.5	WB modes selection No.5	00	00
55	WB modes No.6	WB modes selection No.6	00	00
56	Lens wide L	Lens wide end lower (Set the data of address 9F of page F)	00	
57	Lens wide H	Lens wide end upper (Set the data of address A0 of page F)	01	
58	Lens tele L	Lens tele end lower (Set the data of address A1 of page F)	00	
59	Lens tele H	Lens tele end upper (Set the data of address A2 of page F)	02	

### 7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. (The data of these pages can be set temporarily. When the main power supply (6.3V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)

#### 1. Page 6

Address	Adjustment Mode	Data	Function
00	Page F protect	00 01	Normal (Protect released) Protect release of address 01 to DF of Page F
01	Camera adjustment switch <b>Note:</b> To execute this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote commander after setting the data.	00 01 03 05 07 09 0B 0D 0F 11 13 15 17 19 2F	Normal IRIS OPEN, AGC HOLD IRIS CLOSE1, AGC HOLD IRIS CLOSE2, AGC MIN IRIS CLOSE3, AGC MAX ND0.5 SHUTTER (PAL=1/160, NTSC=1/190) ND0.8 SHUTTER (PAL=1/320, NTSC=1/380) AWB PRESET1: 3200K PRESET DATA input WB 3200K PRESET: Indoor white balance mode AWB PRESET2: 3200K PRESET DATA input preparations Flange back adjustment preparations Flange back adjustment execution 1/2000 shutter mode MAX GAIN adjustment mode EEPROM PRE WRITE: Page F, page E initial data writing
02	DDS display switching	00 03 04 05 0B 0C	Normal HALL DATA display R ratio display B ratio display ZOOM switch A/D value display Auto focusing display (01: Focusing, 00: Not focusing)
03	Weighting on/off	01 10	Weighting off Normal (Weighting on)
11	Page F data initialization completed display	00 01	Normal (Data can be initialized) Data initialized
12	Shutter mode	00 01	Normal 1/4000 shutter mode
21	Flange back adjustment completed display	00 01	Normal (Flange back adjustable) Flange back adjusted
25	Auto focus on/off	00 01	Normal Auto focus off
26	MR sensor output check	00 08 Others	{ Normal Abnormal

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

Table 7-3.

## 2. Page 2

Category	Address	Adjustment Mode	Data	Function
01	37	VH address L		Title horizontal/vertical position (L)
01	38	VH address H		Title horizontal/vertical position (H)
01	39	Data transmission to SG	00 01	Normal Data transmission to SG begins

Note: The category is specified by the data of page 2, address 00.

(Example) To specify category 01, adjust to 01 the data of page 2, address 00.

Table 7-4.

### 7-1-7. Adjustment Connector.

Most of the measuring points for the camera section adjustment are concentrated at CN651 of the VC-128 board. Connect the oscilloscope, etc. via the measuring pin tool (J-6082-139-A). The following table lists the pin numbers and the signal names of CN651.

Pin No.	Signal Name	Pin No.	Signal Name
1	D5V	2	ECCP SIG
3	ZOOM SW	4	CAM SI
5	CS EEPROM	6	CAM SO
7	LI 3V	8	CAM SCK
9	CS CORE	10	GND
11	ECCP DC	12	VIDEO GND
13	V SUB CHK	14	C OUT
15	PG CONT	16	GND
17	VIDEO OUT	18	Y OUT

Table 7-5.

### 7-1-8. Data Processing

For some adjustments, the display data of the adjusting remote commander (hexadecimal numeral) must be calculated in order to obtain the adjustment data. In this case, after converting the hexadecimal numeral to a decimals numeral once, calculate and convert the result to a hexadecimal numeral, and use it as the adjustment data. Table 7-6 is the hexadecimal-decimal calculation table.

Hexadecimal-Decimal Conversion Table

The lower digits of the hexadecimal The upper digits of the hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (B)	C (C)	D (D)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B (B)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (D)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) contains the display of the adjusting remote commander.

(Example) When the DDS display or the display of adjusting remote commander is BD (b d).

As the upper digit of the hexadecimal numeral is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the decimal numeral to be calculated.

Table 7-7.

## 7-2. CAMERA SYSTEM ADJUSTMENTS

### 1. Adjusting points when replacing main parts

When replacing the CCD imager or lens block, adjust the items indicated by ○ in the following table.

	When CCD imager is replaced	When lens block is replaced
V SUB adjustment	○	
V RG adjustment	○	
HALL adjustment		○
CCD imager correction data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Pre-white balance adjustment	○	
Auto white balance balance reference data input	○	
Auto white balance adjustment	○	
Color reproducitvity adjustment	○	
Linear matrix adjustment	○	

### 2. Power supply voltage check (VC-128 board)

Subject	Arbitrary
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	CL360 or L667
Specified value	4.90 ± 0.15 Vdc
D4V check	
Measurement point	CL361 or L663
Specified value	3.95 ± 0.15 Vdc
CAM 5V check	
Measurement point	CL359 or L666
Specified value	4.85 ± 0.15 Vdc
MT 5.0V check	
Measurement point	CL353
Specified value	5.0 ± 0.5 Vdc
15V check	
Measurement point	CL355 or L664
Specified value	15.0 ± 0.4 Vdc
-8.5V check	
Measurement point	CL356 or L665
Specified value	-8.5 ± 0.5 Vdc

#### Checking Method:

- 1) Check that each power supply voltage satisfies the specified value.  
If not, refer to "Video circuit, Power supply block adjustment".

### 3. Page F data modification

Some parts of the data (initial data) automatically written on page F by the initialization of the page F data will differ according to the version of the camera micro processor. Change the data manually, and arrange it.

Modification method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of page F protect.	
2	F	00(SET ID)	3F	Set each data to each address, and press the PAUSE button.	
		0C(LOWLIGHT START)	6A		
		71(AE REFH)	1B		
		A3(MF SPEED)	48		

**Remarks:** The versions of the camera micro processor (VC-128 board IC653) and the AF micro processor (LD-62 board IC751) mode micro processor (VC-128 board IC903) can be distinguished using the following table.

- Camera Micro processor

Page	Address	Data	
6	10	10	Version 1

- AF Micro processor

Page	Address	Data	
6	20	14	Version 1
		10	Version 2

- Mode Micro processor

Page	Address	Data	
1	01	00	Version 1
		20	Version 2

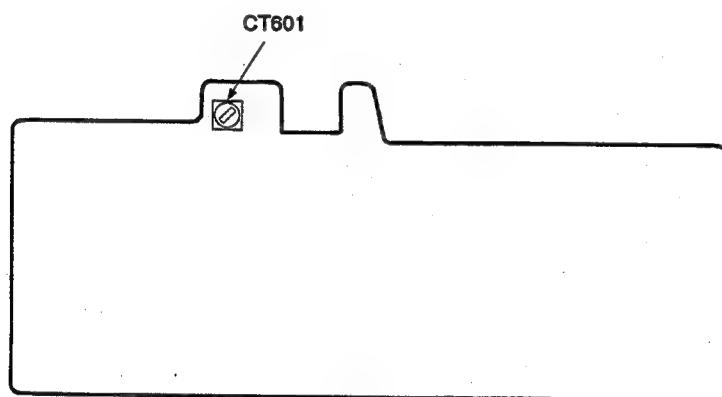
**Note:** Check that camera micro processor version 1 and AF micro processor version 2 mode micro processor version 2 have been provided as micro processors for correction.

**4. 28 MHz origin oscillation adjustment  
(VC-128 board)**

Subject	Not required
Measurement Point	JL651 (side B)
Measuring Instrument	Frequency counter
Adjusting Element	CT601
Specified Value	$14318181 \pm 71$ Hz

Adjusting method:

Order	Adjusting element	Procedure	Conditions
1	CT601	Adjust the oscillation frequency to the	



**Fig. 7-7.**

## 5. V SUB adjustment (VC-128 board)

*T6*

Subject	Not required
Measurement Point	Pin ⑬ of CN651 (V SUB CHK)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	06 (V SUB)
Specified Value	(Imager displayed voltage) $\pm 0.1$ Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	F	06		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑬ of CN651 to the specified value.	
3	F	06		Press the PAUSE button.	

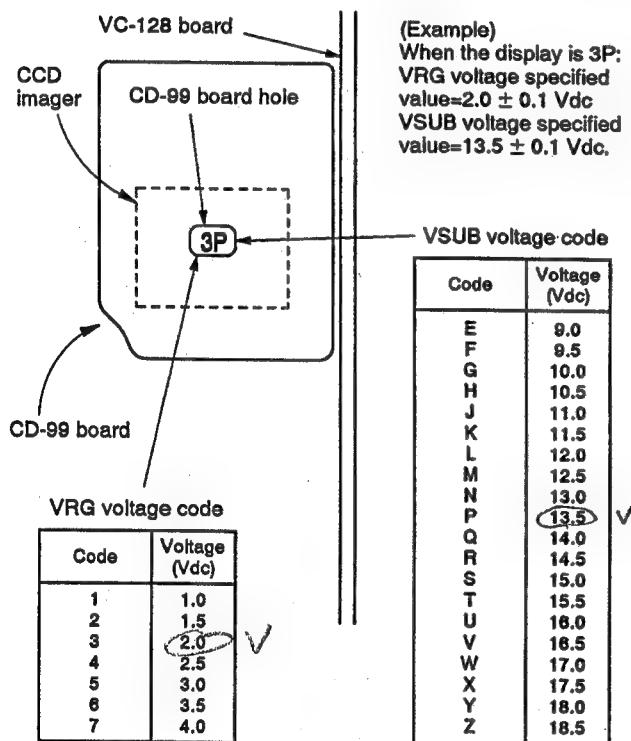


Fig. 7-8.

### Related Adjustments:

"MAX GAIN adjustment", "Pre-white balance adjustment", "Auto white balance data input", "Auto white balance adjustment", "Color reproducibility adjustment", "Linear matrix adjustment".

## 6. VRG adjustment (VC-128 board)

Subject	Not required
Measurement Point	Pin ⑯ of CN651 (PG CONT)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	(Imager displayed voltage) ± 0.1 Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	F	07		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑯ of CN651 to the specified value.	
3	F	07		Press the PAUSE button.	

## 7. CCD imager correction data writing

Subject	Not required
Adjustment Page	F
Adjustment Address	1F to 2E (CCD-DEFECT)

Write the CCD imager correction data in the following cases.

1. When the CCD imager has been replaced
2. When the camera EEPROM (VC-128 board IC651) has been replaced
3. When the page F data has been initialized

In the case of 1, as the CCD imager for repair does not require the correction data, adjust the data of addresses 1D to 2C of page F and those of addresses E0 to EF of page D to "00".

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of page F protect.	
2	F	1F~2E		Set data 00 to each address, and press the PAUSE button.	
3	1	00	01	Releasing of page D protect.	
4	D	E0~EF		Set data 00 to each address, and press the PAUSE button. (Writing the backup data)	

In the case of 2 and 3, read the CCD imager correction data written on addresses E0 to EF in page D and write them in addresses 1F to 2E.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of page F protect.	
2	D	E0~EF		Read the CCD imager correction data.	
3	F	1F		Set the data of address E0 of page D, and press the PAUSE button.	
		20		Set the data of address E1 of page D, and press the PAUSE button.	
		21		Set the data of address E2 of page D, and press the PAUSE button.	
		:		⋮	
		2E		Set the data of address EF of page D, and press the PAUSE button.	

## 8. HALL adjustment

Subject	Not required
Measurement Point	Lower 2 digits of the data of the page A displayed
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0A (HALL GAIN) 0B (HALL OFFSET)
Specified Value	33 to 37 during IRIS OPEN B8 to BC during IRIS CLOSE

*For IRIS*

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	02	03	Set the HALL DATA display mode.	
3	6 F	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
4	F 6	0B	80	Press the PAUSE button. (HALL OFFSET data initial setting)	
5	F	0A	40	Read the page A display data (Note 1) and take it as W2.	IRIS CLOSE mode
6	F	0A	30	Read the page A display data and take it as W1.	IRIS CLOSE mode
7	F	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
8	F	0A	30	Read the page A display data and take it as K1.	IRIS OPEN mode
9	F	0A	40	Read the page A display data and take it as K2.	IRIS OPEN mode
10				Convert W1, W2, K1, K2 to decimal numerals, and obtain W1', W2', K1', K2'. (Refer to Table 7-7. "Hexadecimal-Decimal Conversion Table")	
11				Calculate X1' using the following equations (Decimal calculation). A'=W2'+K1'-W1'-K2' ..... Equation 1 B'=W1'-K1' ..... Equation 2 X1' = $\frac{2128+(48+A')-(16\times B')}{A}$ ..... Equation 3	
12				Convert X1' to a hexadecimal numeral, and obtain X1. (Round off to a whole number)	
13	F	0A		Set the data to X1 (obtained at step 12).	
14	F	0A		Press the PAUSE button.	
15	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to 35.	IRIS OPEN mode
16	6	0B		Press the PAUSE button.	
17	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
18				If the page A display data is B8 to BC, it indicates the end of adjustments. Perform "Processing after Adjustments". If not, carry out step 19 onwards with the page A display data as W0.	IRIS CLOSE mode

#### **Processing after Adjustments:**

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE/OPEN mode)	

**Related Adjustments:**  
“IRIS IN/OUT adjustment”.

## 9. Flange back adjustment

Subject	Chart for flange back adjustment Placed 2000 ± 5 mm in front of the lens Illuminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	<b>Releasing of protect.</b>	
2	F	9D	00	Set the initial data, and press the PAUSE button.        	
		9E	2C		
		9F	00		
		A0	01		
		A1	E0		
		A2	02		
		A9	08		
3				Check that the center of the flange back adjustment chart coincides with that of the exposure display at both the zoom lens TELE end and the WIDE end.	
4	6	21		Check that the data is 00. (Flange back adjustable display)	
5	6	01	13	Press the PAUSE button.	
6	6	01	15	Press the PAUSE button.  This enables adjustments to be carried out automatically. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 9D to A2, A9.)	
7	6	21		Check that the data is 01. (Display indicating that flange back adjustment has completed.)	

Write the data of addresses 9F to A2 on page F onto addresses 56 to 59 on page D. (If this step is not performed, errors will occur in the zoom/focus operation during the position preset function operation.)

Processing after Adjustments:

Order	Procedure
1	Turn on the main power supply (6.3V). (Out of focus if this is not carried out.)

## 10. Flange back check

Subject	Siemens star (Placed 2m in front of the lens)		
Measurement Point	Data of page A displayed		
Measuring Instrument			
Specified Value	$X-Y = \pm 0123$		

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Place the Siemens star 2m in front of the lens.	
2				Adjust the auto lock switch to "Off".	
3				Adjust the "Brightness" to "Manual", rotate the "Brightness" adjusting dial to + so that the IRIS opens.	FK-57 board S151, S152
4				Adjust the luminance intensity for the Siemens star so that the optimum image is obtained.	
5				Expose the Siemens star at the TELE end.	
6				Press the "Focus" button, and turn on the auto focus.	
7	6	02	0C	Check that the page A display is 00 0001. (Focusing check)	Auto focus on
8				Press the "Focus" button and turn off the auto focus.	
9				Expose the Siemens star at the WIDE end.	
10	6	00	01	<b>Releasing of protect.</b>	
11	6	02	00		
12	F	02	B8	Press the PAUSE button. (Setting the focus position display mode)	
13				Read the page A display data and take it as X. (Example) DDS display...63 4500 $X=6345$	Zoom WIDE end Auto focus off
14				Press the "Focus" button, and turn on the auto focus.	
15	6	02	0C	Check that the page A display is 00 0001. (Focusing check)	Auto focus on
16	6	02	00	Read the page A display (focus position display) data and take it as Y. (Example) DDS display...63 5B00 $Y=635B$	Zoom WIDE end Auto focus on Focusing condition
17				Check that $X-Y = \pm 0123$ . ( $X'-Y' = \pm 291$ when converted to a decimal numeral)	

Processing after Checking:

Order	Page	Address	Data	Procedure
1	F	02	00	Press the PAUSE button. (Releasing the focus position display mode)

### 11. SYNC level adjustment (S Video) (VC-128 board)

Subject	Not required
Measurement Point	Pin ④ of CN654
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	08 (VREF-Y)
Specified Value	A=286 ± 10 mV (NTSC) A=300 ± 10 mV (PAL)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
3	F	08		Change the data with the PLAY and STOP buttons, and adjust the SYNC level to the specified value.	IRIS CLOSE mode Terminate at 75Ω
4	F	08		Press the PAUSE button.	

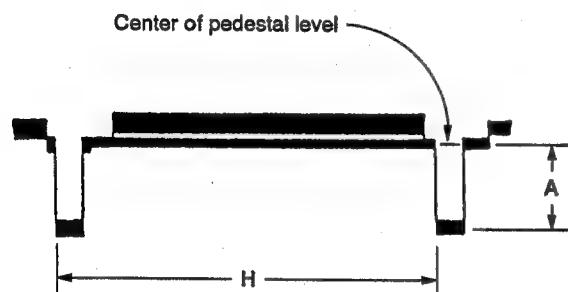


Fig. 7-9.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

## 12. Burst level adjustment (S Video) (VC-128 board)

Subject	Not required
Measurement Point	Pin ② of CN654
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	09 (VREF-C)
Specified Value	A=286 ± 10 mVp-p (NTSC) A=300 ± 10 mVp-p (PAL)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	01	03	Press the PAUSE button (Setting the IRIS CLOSE mode)	
3	F	09		Change the data with the PLAY and STOP buttons, and adjust the burst level to the specified value.	IRIS CLOSE mode Terminate at 75Ω
4	F	09		Press the PAUSE button.	

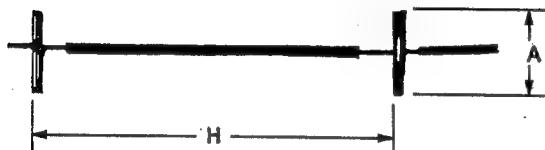


Fig. 7-10.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

Related Adjustments:

"Color reproducitvity adjustment".

### 13. SYNC level adjustment (Composite) (VC-128 board)

Note: Perform steps 11 and 12 after the adjustment.

Subject	Not required	
Measurement Point	Pin ⑥ of CN654 (VIDEO OUT)	
Measuring Instrument	Oscilloscope	
Adjustment Page	D	
Adjustment Address	OC (Y/C MIX Y)	
Specified Value	A=286 ± 10 mV (NTSC) A=300 ± 10 mV (PAL)	

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	1	00	01	Releasing of protect. (page D)	
2	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
3	D	0C		Change the data with the PLAY and STOP buttons, and adjust the SYNC level to the specified value.	IRIS CLOSE mode Terminate at 75Ω
4	D	0C		Press the PAUSE button.	

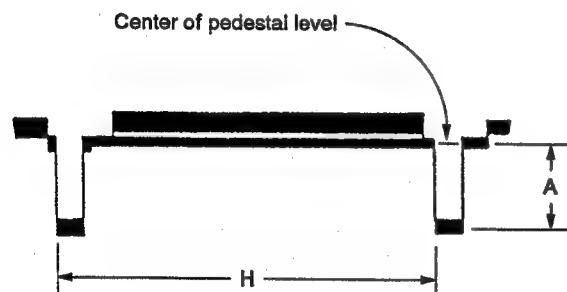


Fig. 7-13.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

#### 14. Burst level adjustment (Composite) (VC-128 board)

Note: Perform steps 11 and 12 after the adjustment.

Subject	Not required
Measurement Point	Pin ⑥ of CN654
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0D (Y/C MIX C)
Specified Value	A=286 ± 10 mVp-p (NTSC) A=300 ± 10 mVp-p (PAL)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	1	00	01	Releasing of protect.	
2	6	01	03	Press the PAUSE button (Setting the IRIS CLOSE mode)	
3	D	0D		Change the data with the PLAY and STOP buttons, and adjust the burst level to the specified value.	IRIS CLOSE mode Terminate at 75Ω
4	D	0D		Press the PAUSE button.	

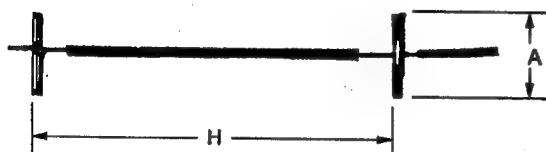


Fig. 7-14.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

Related Adjustments:

"Color reproducitvity adjustment".

## 15. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	$A=B, C=D, t=0 \pm 0.1 \text{ msec.}$

Setting method:

Order	Procedure
1	Turn off the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust the direction of the zoom and camera, and set at the specified position.
4	Mark the position of the picture frame on the monitor display, and adjust it to this position if the "color bar chart standard picture frame" or "white pattern standard picture frame" is used in the following adjustments.

Checking on the TV monitor (Under scan mode)

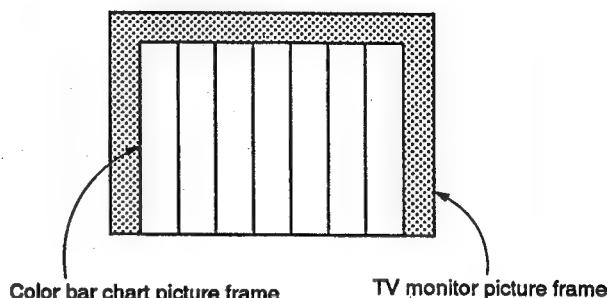
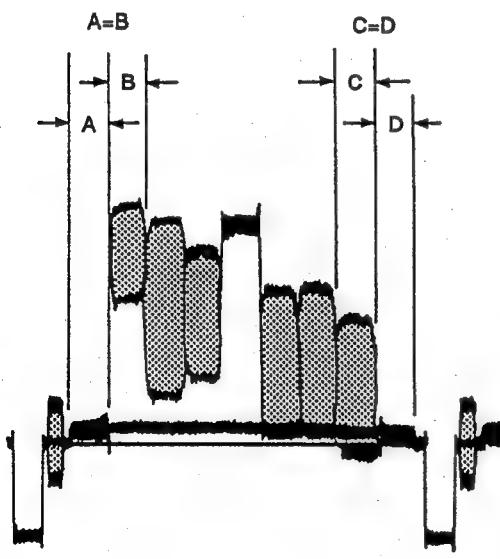


Fig. 7-12.

Checking with the oscilloscope

### 1. H cycle



### 2. V cycle

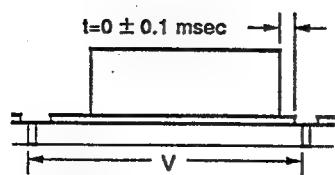


Fig. 7-11.

## 16. IRIS IN/OUT adjustment

Subject	White pattern standard picture frame
Measurement Point	Lower 2 digits of the data of the page A displayed
Measuring Instrument	
Adjustment Page	F

Adjustment Address  
44 (IRIS IN)  
45 (IRIS OUT)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	<b>Releasing of protect.</b>	
2	6	02	03	Setting of HALL DATA display mode.	
3	6	01	0B	Press the PAUSE button. (Setting the ND 0.8 shutter mode)	
4				Read the lower 2 digits of the page A display data, and take it as D44.	ND 0.8 shutter mode
5	F	44		Adjust the data to D44 (obtained at step 4) with the PLAY and STOP buttons.	
6	F	44		Press the PAUSE button.	
7	6	01	09	Press the PAUSE button. (Setting the ND 0.5 shutter mode)	
8				Read the lower 2 digits of the page A display data, and take it as D45.	ND 0.5 shutter mode
9	F	45		Adjust the data to D45 (obtained at step 8) with the PLAY and STOP buttons.	
10	F	45		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	01	Press the PAUSE button. (Releasing the ND 0.5 shutter mode.)	

### 17. Max gain adjustment (VC-128 board)

Subject	Color bar standard picture frame		
Measurement Point	Pin 10 of CN651 (CAM Y)		
Measuring Instrument	Oscilloscope		
Adjustment Page	F		
Adjustment Address	73 (AE MIN L)		
Specified Value	$A=520 \pm 20 \text{ mV}$		

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	01	19	Press the PAUSE button. (Max gain adjustment mode)	
3	F	73		Change the data with the PLAY and STOP buttons, and adjust the CAM Y signal level (A) to the specified value.	MAX GAIN adjustment mode
4	F	73		Press the PAUSE button.	

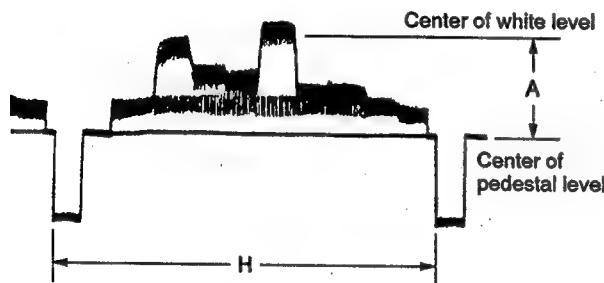


Fig. 7-15.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the max gain adjustment mode)	

## 18. Pre-white balance adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3E (R CONT REF), 3F (B CONT REF)
Specified Value	The center of the white luminance point should be within the circle with a 1 mm diameter which centers around the origin.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
3	F	3E 3F		Change the data alternately, and coincide the white luminance point with the origin. Before changing the address, press the PAUSE button.	WB 3200K preset mode
4	F	1A	FA	Press the PAUSE button.	
5	F	1B	F1	Press the PAUSE button.	

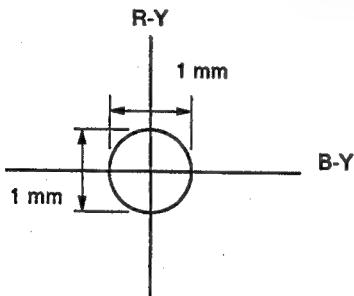


Fig. 7-16.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB3200K preset mode.)	

Related Adjustments:

"White balance reference data input", "Auto white balance adjustment", "Color reproducibility adjustment".

### 19. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	38 (R3200H), 39 (R3200L), 3A (B3200H), 3B (B3200L), 3C (G3200H), 3D (G3200L)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply (6.3V).	
2	6	00	01	<b>Releasing of protect.</b>	
3	6	11		Check that the data is 00. (Display indicating that auto white balance reference data can be input)	
4	6	01	11	Press the PAUSE button. (Auto white balance reference data input preparation mode)	
5	6	01	0D	Press the PAUSE button. (The auto white balance reference data input will be executed and the data input automatically to addresses 38 to 3D of page F.)	
6	6	11		Check that the data is 01. (Display indicating that the auto white balance reference data input completed)	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the auto white balance reference data input mode)	
2				Perform "Auto White Balance Adjustment".	

Related Adjustments:

"Auto White Balance Adjustment".

## 20. Auto white balance adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the 4 digits of the data of page A displayed.
Measuring Instrument	
Adjustment Page	F
Adjustment Address	40 (NORM R), 41 (NORM B)
Specified Value	R ratio $2A80 \pm 40$ B ratio $6080 \pm 40$

**Note:** Perform this adjustment after "Auto White Balance Reference Data Input".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	<b>Releasing of protect.</b>	
2	F	6B	D0	Press the PAUSE button. (Setting the auto white balance adjustment mode)	
3	6	02	04	Setting of R ratio display mode.	
4	F	40		Change the data with the PLAY and STOP buttons, and adjust the R ratio data of the page A display to the specified value.	R ratio display mode Perform this by switching pages A and F.
5	6	02	05	Setting of B ratio display mode.	
6	F	41		Change the data with the PLAY and STOP buttons, and adjust the B ratio data of the page A display to the specified value.	B ratio display mode Perform this by switching pages A and F.
7	F	41		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance adjustment mode)	
2	6	02	00	Releasing of B ratio display mode.	

## 21. White balance check

Subject	White pattern standard picture frame		
Filter	Filter C14 for color temperature correction ND filters 1.0 and 0.3		
Measurement Point	Video output terminal		
Measuring Instrument	Vectorscope		
Specified Value	Fig. 7-17. A to C		

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the lens is not covered with either filter.	
2	6	00	01	Releasing of protect.	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4				Check that the white luminance point is within the circle shown in Fig. 7-17. A. (Setting the indoor white balance mode)	WB 3200K preset mode, no filter
5	6	01	00	Press the PAUSE button. (Releasing WB 3200K preset mode)	
6	F	67	01	Press the PAUSE button. (Setting the auto white balance high speed tracking mode)	
7				Check that the white luminance point is within the circle shown in Fig. 7-17. A.	Auto white balance high speed tracking mode, no filter
8				Place the C14 filter on the lens.	
9				Check that the white luminance point is within the circle shown in Fig. 7-17. B. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, C14 filter
10				Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) over the lens.	
19				Check that the white luminance point is within the circle shown in Fig. 7-17. C. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, ND filter 1.3

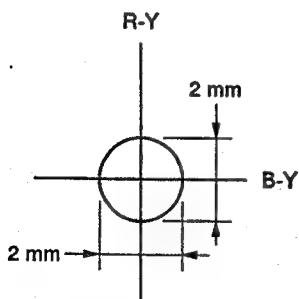


Fig. 7-17. A

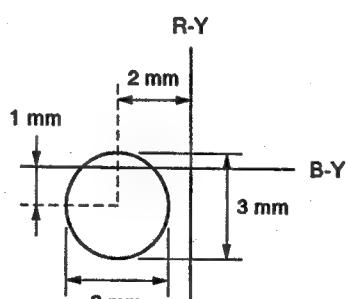


Fig. 7-17. B

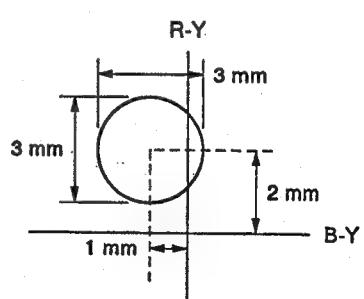


Fig. 7-17. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	67	00	Press the PAUSE button. (Releasing the auto white balance high speed tracking mode)	

## 22. Color reproducibility adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	1A (CORE R-Y HUE) 1B (CORE B-Y HUE) 1C (CORE B-Y GAIN), 1D (CORE R-Y GAIN)
Specified Value	Each color luminance point should be within each color reproduction frame.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	6	00	01	Releasing of protect.	
2	6	03	00	Setting of weighting off mode.	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4	F	1A 1B 1C 1D		Change the data, and adjust so that each color luminance point is within each color reproduction frame. Press the PAUSE button for each address.	Weighting off mode WB 3200K preset mode

Burst position

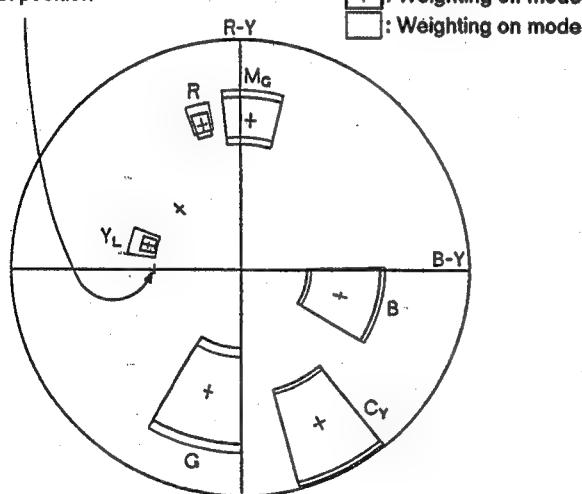


Fig. 7-18.

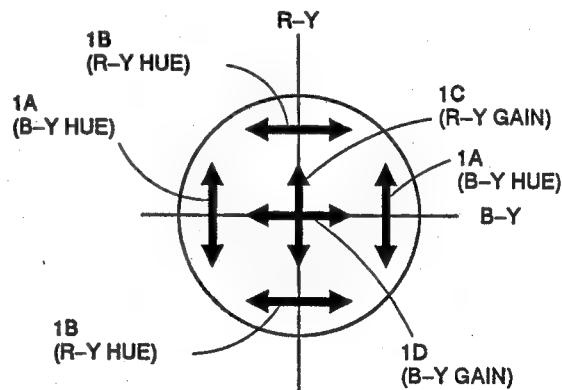


Fig. 7-19. Direction of the Movements of Adjustment Addresses and Luminance Points

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB 3200K preset mode)	
2	6	03	10	Set the normal mode (weighting on mode).	

Related Adjustments:

"Linear matrix adjustment".

### 23. Linear matrix adjustment

Subject	Color bar standard picture frame
Measurement Point	Filter C14 for color temperature correction
Measuring Instrument	Check with the 4 digits of the data of page A displayed.
Adjustment Page	
Adjustment Address	F
Specified Value	48 (DMAT HUE), 49 (DMAT GAIN)

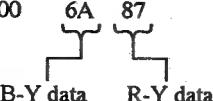
**Note:** Before beginning adjustments, check that the color bar chart picture frame is at the position set in "14. Picture frame setting".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Remove the filter C14 for color temperature correction.	
2	6	00	01	<b>Releasing of protect.</b>	
3	6	03	00	Setting of weighting off mode.	
4	6	02	02	Setting of color difference data display mode.	
5	F	16	2E	Press the PAUSE button. (Setting the color modulation stop mode)	
6	F	6B	F1	Press the PAUSE button. (Setting the auto white balance all area tracking mode)	
7	2	00	01	Selecting of page 2, category 01.	
8	2	39	01	Setting of data transmission mode for SG.	
9	2	37	C9	} Specifying of position of yellow.	Specifying of position of yellow, no filter
10	2	38	B6		
11	F			Read the R-Y data (Y1) of the page A display. (Note 1)	
12	2	37	59	} Specifying of position of red.	Specifying of position of red, no filter
13	2	38	6D		
14	F			Read the R-Y data (R1) of the page A display. (Note 1)	
15				Cover the lens with the filter for color temperature correction. (Make sure that the picture frame of the color bar chart does not move.)	Specifying of position of yellow, C14 filter
16				Read the R-Y data (R2) of the page A display. (Note 1)	
17				Convert Y1, Y2, R1, R2 to decimal numerals to obtain Y1', Y2', R1' and R2'. (Refer to Table 7-7 "Hexadecimal-Decimal Conversion Table")	
				Calculate X1' from the following equations (decimal numeral calculation). $X1' = Y2' - Y1'$	

**Note 1:** 2 digits of 4 digit number displayed of the page A.

Y1, Y2, R1, and R2 are all above 80.

(Example) 00 6A 87  


Order	Page	Address	Data	Procedure	Conditions								
18				Calculate D48 from the following table. (D48 is a hexadecimal numeral)									
				<table border="1"> <thead> <tr> <th>X<sub>1'</sub> value</th> <th>D<sub>48</sub></th> </tr> </thead> <tbody> <tr> <td>-1 ≤ X<sub>1'</sub> ≤ 1</td> <td>0F</td> </tr> <tr> <td>X<sub>1'&gt;1</sub></td> <td>1F</td> </tr> <tr> <td>X<sub>1'&lt;-1</sub></td> <td>FF</td> </tr> </tbody> </table>	X <sub>1'</sub> value	D <sub>48</sub>	-1 ≤ X <sub>1'</sub> ≤ 1	0F	X <sub>1'&gt;1</sub>	1F	X <sub>1'&lt;-1</sub>	FF	
X <sub>1'</sub> value	D <sub>48</sub>												
-1 ≤ X <sub>1'</sub> ≤ 1	0F												
X <sub>1'&gt;1</sub>	1F												
X <sub>1'&lt;-1</sub>	FF												
19	F	48		Adjust the data to D48 (obtained at step 18) with the PLAY and STOP buttons.									
20	F	48		Press the PAUSE button.									
21				Calculate X <sub>2'</sub> from the following equations (decimal numeral calculation). X <sub>2' = R2' - R1'</sub>									
22				Calculate D49 from the following table.									
				<table border="1"> <thead> <tr> <th>X<sub>2'</sub> value</th> <th>D<sub>49</sub></th> </tr> </thead> <tbody> <tr> <td>X<sub>2' ≥ 0</sub></td> <td>00</td> </tr> <tr> <td>0&gt;X<sub>2' ≥ -1</sub></td> <td>01</td> </tr> <tr> <td>-1&gt;X<sub>2'</sub></td> <td>02</td> </tr> </tbody> </table>	X <sub>2'</sub> value	D <sub>49</sub>	X <sub>2' ≥ 0</sub>	00	0>X <sub>2' ≥ -1</sub>	01	-1>X <sub>2'</sub>	02	
X <sub>2'</sub> value	D <sub>49</sub>												
X <sub>2' ≥ 0</sub>	00												
0>X <sub>2' ≥ -1</sub>	01												
-1>X <sub>2'</sub>	02												
23	F	49		Adjust the data to D49 (obtained at step 22) with the PLAY and STOP buttons.									
24	F	49		Press the PAUSE button.									

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance all area tracking mode)	
2	F	16	2C	Press the PAUSE button. (Releasing the color modulation stop mode)	
3	6	02	00	Releasing of color difference data display mode.	
4	6	03	10	Setting of normal mode (Weighting ON mode).	

#### 24. Initializing the Page F Data

**Note:** If the page F data has been initialized, all the adjustments for the camera section must be performed again.

Initializing method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn OFF/ON the main power supply (0.0V).	
2	6	00	01	<b>Release the protect.</b>	
3	6	01	2F	Press the PAUSE button. Initialization of the data of page F.) Initialization of the data of addresses 01 to EF on page F.	
4	6	11		Check that the data is 01. (Completion of initialization will be indicated.)	

**Note:** Initialize page F only when the non-volatile memory (IC651, 901 on the VC-128 board, EEPROM) has been replaced.

Processing after initializing

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Release of initialization mode.)	
2				Perform "Page F data modification", and perform all the adjustments for the camera section.	

#### Related adjustments

All camera section adjustments except the "28 MHz origin oscillation adjustment".

## 25. Initializing the Page D Data

Initializing method:

Order	Page	Address	Data	Procedure	Conditions
1	1	02	01	Turn OFF/ON the main power supply. Check that the data of address 03 becomes 00.	
2	1	03		Press the PAUSE button.	
3				Check that the data is 01. (Completion of initialization will be indicated.)	

**Note:** Initialize page D only when the non-volatile memory (IC901 on the VC-128 board, EEPROM) has been replaced.

Processing after initializing

Order	Page	Address	Data	Procedure	Conditions				
1	1	02	00	Press the PAUSE button. (Release of initialization mode.)					
2	1	00	01	Release the protect. (Page D)					
3				Perform "Page D data modification". <ul style="list-style-type: none"> <li>• Address      Data               <table> <tr><td>12</td><td>00→02</td></tr> <tr><td>14</td><td>00→04</td></tr> </table> </li> <li>• Write the data of addresses 9F to A2 on page F onto addresses 56 to 59 on page D. (Data for the position preset function operation.)</li> <li>• Write the data of addresses 1F to 2E on page F onto addresses E0 to EF on page D. (Data for CCD fault correction.)</li> <li>• After completing the above, adjust the Y and C composite video signals.</li> </ul>	12	00→02	14	00→04	
12	00→02								
14	00→04								

CN102 7P L 1.5mm JST
ZOOM WIDE 1
ZOOM TELE 2
AF ON/OFF 3
FOCUS NEAR 4
FOCUS FAR 5
GND 6
NC 7

CN101 3P L 1.5mm SMK
ZOOM/FOCUS SW 1
GND 2
AF ON LED 3

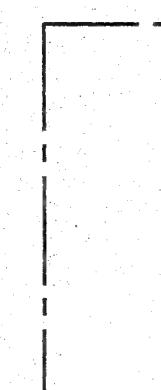
**FK-56**

CN102 7P L 1.5mm JST
ZOOM WIDE 1
ZOOM TELE 2
AF ON/OFF 3
FOCUS NEAR 4
FOCUS FAR 5
GND 6
NC 7

CN101 3P L 1.5mm SMK
ZOOM/FOCUS SW 1
GND 2
AF ON LED 3

**FK-57**  
(OPTION)

CN150 20P 0.5mm ZIF TRAK
POSITION SW A 1
POSITION SW B 2
PREP/RESET AVB 3
AE CONT 4
PO 1 LED 5
PO 2 LED 6
PO 3 LED 7
PO 4 LED 8
PO 5 LED 9
KEY LOCK LED 10
AVB LED 11
ONE PUSH WB LED 12
BACK LIGHT 13
BRIGHT 14
0 5V 15
OUT DOOR LED 16
AE LED 17
IN DOOR LED 18
OUT DOOR LED 19
GND 20



CN901 20P 0.5mm ZIF TRAK

POSITION SW A
POSITION SW B
PREP/RESET AVB
AE CONT
PO 1 LED
PO 2 LED
PO 3 LED
PO 4 LED
PO 5 LED
PO 6 LED
IN DOOR LED
OUT DOOR LED
AE LED
KEY LOCK LED
AVB LED
ONE PUSH WB LED
BACK LIGHT
BRIGHT
0 5V

CN601 18P 0.8mm B TO B

PG 1	1	PG	1
V SUB 2	2	V SUB	2
GND 3	3	GND	3
CAM -8.5V 4	4	CAM -8.5V	4
HI 5	5	HI	5
V2 6	6	V2	6
H2 7	7	H2	7
VI 8	8	VI	8
GND 9	9	GND	9
V3 10	10	V3	10
VSUB CHK 11	11	VSUB CHK	11
V4 12	12	V4	12
VSUB CONT 13	13	VSUB CONT	13
ISV 14	14	ISV	14
CCD OUT 15	15	CCD OUT	15
GND 16	16	GND	16
NC 17	17	NC	17
NC 18	18	NC	18

**CD-99**

**VC-12**

# EVI-310/311 FRAME SCHEMATIC DIAGRAM

**CONFIDENTIAL**

4-1. Frame Schematic Diagram

DC 6.0 - 9.0V

CN654 6P L 1.5mm JST	
1	GNB
2	C OUT
3	GNB
4	Y OUT
5	GNB
6	V18EO OUT

CN351 2P L 1.5mm JST	
1	BC IN
2	GNB

CPC

CN651 18P L 0.8mm B TO B

1	B 5V
2	ECCP SIG
3	ZOOM SW
4	CAM SI
5	CS EEPROM
6	CAM SO
7	LI 3V
8	CAM SCK
9	CS CORE
10	GNB
11	ECCP DC
12	GNB
13	V SUB CHK
14	C OUT
15	PG CONT
16	GNB
17	V18EO OUT
18	Y OUT

VC-128

CN652 30P 0.8mm B TO B

WEN	1	1	WEN
MT 5V	2	2	MT 5V
CS OP0	3	3	CS OP0
MT 5V	4	4	MT 5V
— AF SO	5	5	— AF SO
MT GNB	6	6	MT GNB
— AF SI	7	7	— AF SI
MT GNB	8	8	MT GNB
AF SCK	9	9	AF SCK
0 5V	10	10	0 5V
— CAM SO	11	11	— CAM SO
CAM 5V	12	12	CAM 5V
— CAM SI	13	13	— CAM SI
CAM GNB	14	14	CAM GNB
CAM SCK	15	15	CAM SCK
CAM GNB	16	16	CAM GNB
CS AF	17	17	CS AF
IRIS PWM	18	18	IRIS PWM
CL	19	19	CL
AF COSMO RESET	20	20	AF COSMO RESET
VB	21	21	VB
CAM VB	22	22	CAM VB
HD	23	23	HD
HALL A/B	24	24	HALL A/B
REF 2V	25	25	REF 2V
MAN FOCUS (1)	26	26	MAN FOCUS (1)
HALL GAIN	27	27	HALL GAIN
MAN FOCUS (2)	28	28	MAN FOCUS (2)
HALL OFFSET	29	29	HALL OFFSET
ZOOM SW	30	30	ZOOM SW

LD-62

VSUB CONT	13	13	VSUB CONT
ISV	14	14	ISV
CC8 OUT	15	15	CC8 OUT
GND	16	16	GND
NC	17	17	NC
NC	18	18	NC

CN751 26P 0.5mm FPC

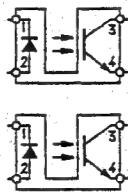
MR SENS SO	1
MR SENS A	2
MR SENS VCC	3
MR SENS B	4
MR SENS GNB	5
MR SENS C	6
GND	7
ZOOM 2B	8
ZOOM 2A	9
ZOOM 1B	10
ZOOM 1A	11
IRIS HALL (-)	12
IRIS HALL (+)	13
IRIS BIAS (-)	14
IRIS BIAS (+)	15
IRIS CONT (+)	16
IRIS DRIVE (+)	17
IRIS CONT (-)	18
IRIS DRIVE (+)	19
FOCUS SCOIL 2B	20
FOCUS SCOIL 2A	21
FOCUS DRIVE 1B	22
FOCUS DRIVE 1A	23
ZOOM SENS GND	24
ZOOM SENS OUT	25
ZOOM SENS VCC	26

LENS

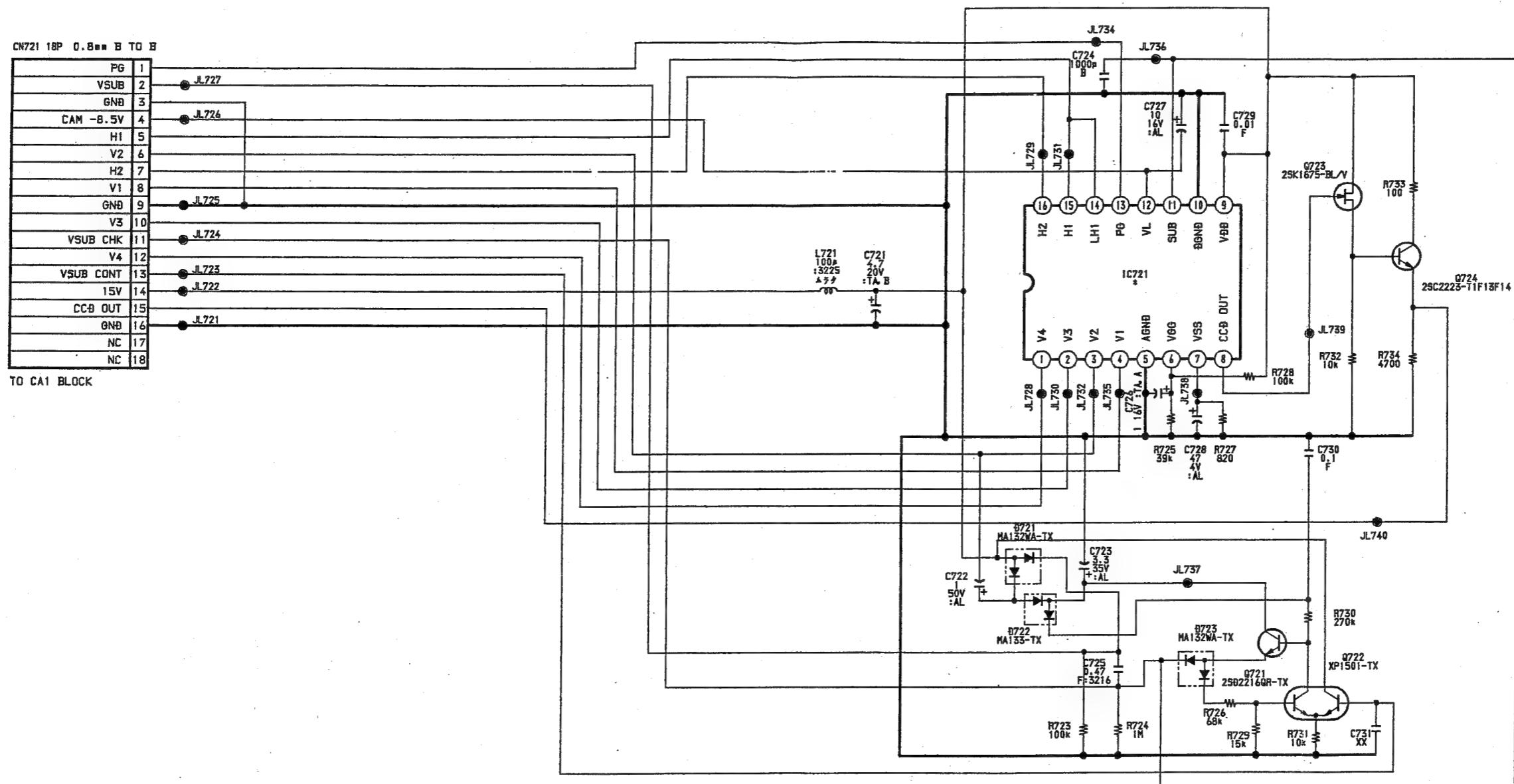
ZOOM M

FOCUS M

IRIS M



FPC



## CCD IMAGER BLOCK

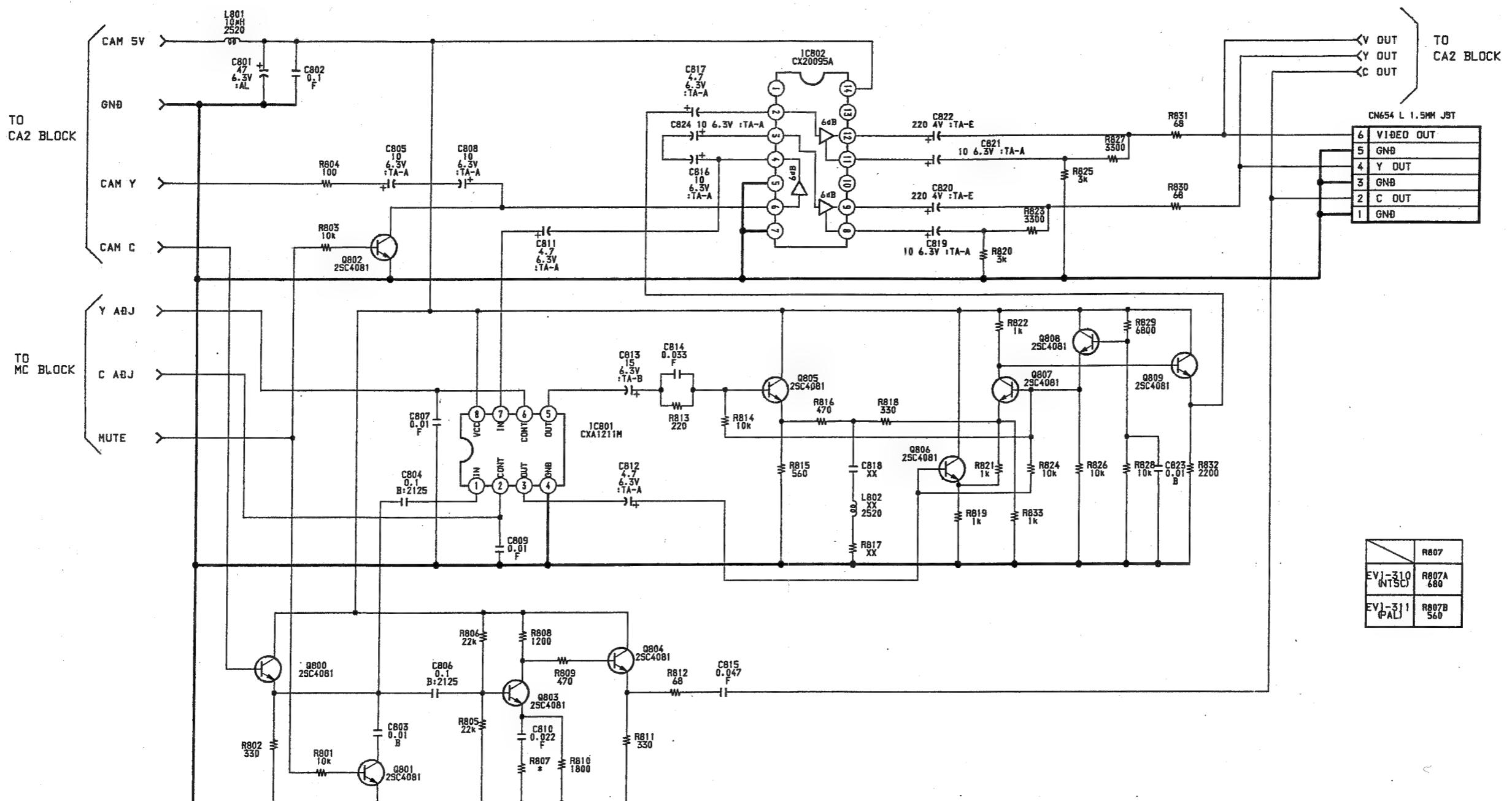
CD-99/99P BOARD

EVI-310 1-649-953-11 (CD-99)

EVI-311 1-649-953-21 (CD-99P)

EVI-310 (NTSC)	EVI-311 (PAL)
IC721A 1CX058AK-2	IC721B 1CX059AK-2

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## COMPOSITE VIDEO/S VIDEO BUFFER BLOCK

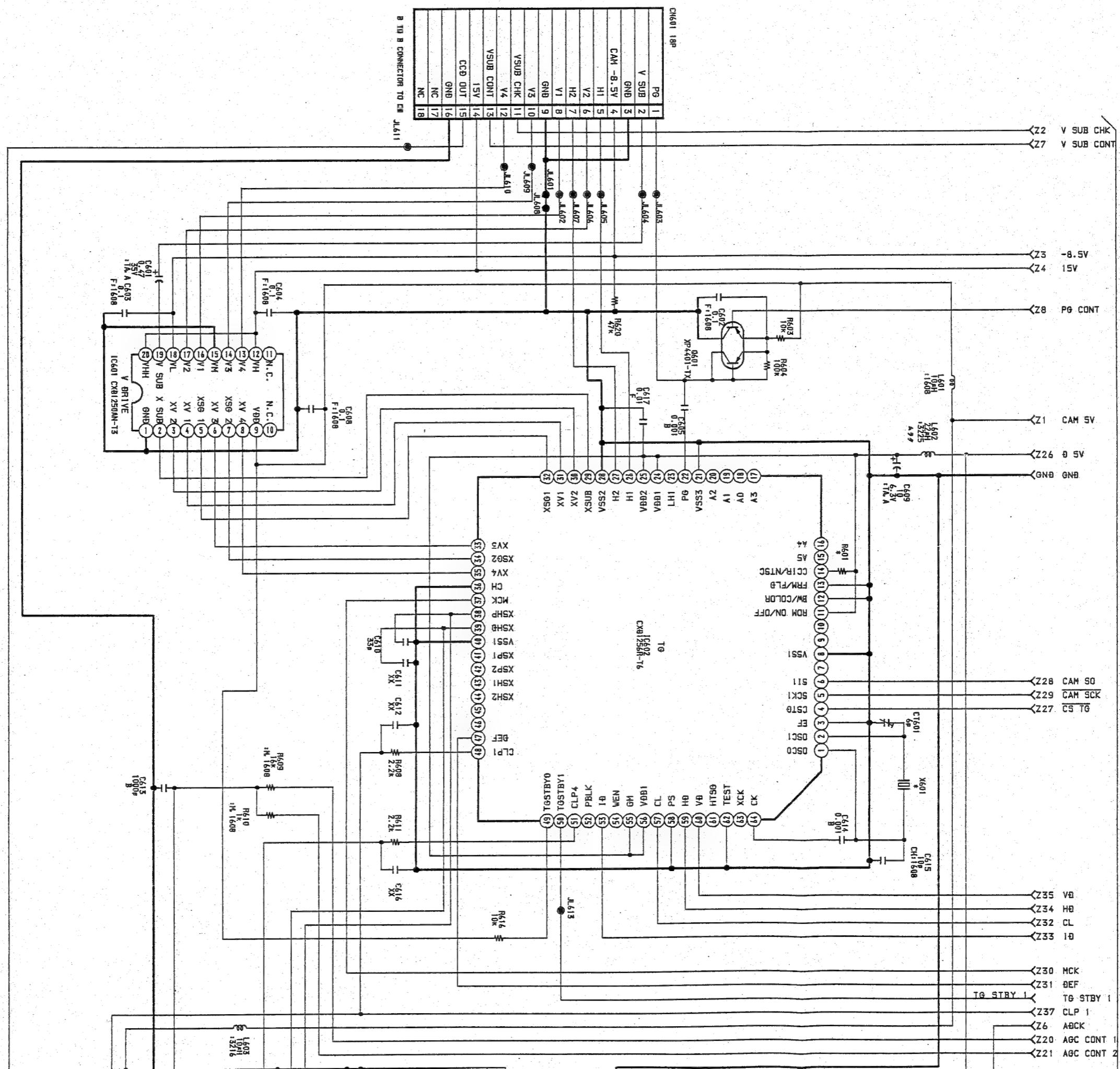
VC-128/128P BOARD (4/5) VS BLOCK

EVI-310 1-649-950-11 (VC-128)

EVI-311 1-649-950-21 (VC-128P)

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EVI-310	EVI-311
(NTSC)	(PAL)
R601A	R601B
28.635MHz	28.375MHz

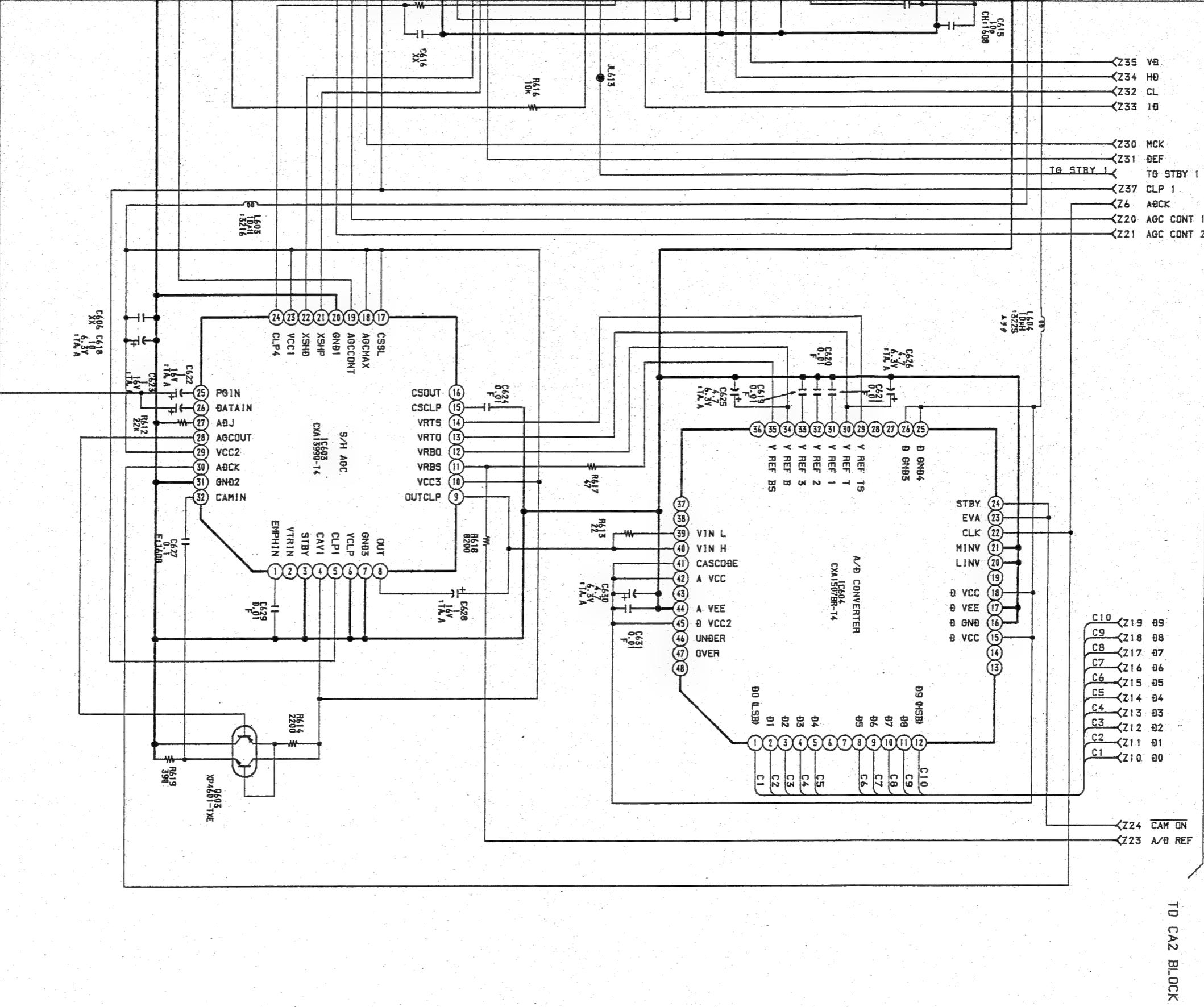


CAMERA 1 BLOCK

VC-128/128P BOARD (1/5) CA1 BLOCK

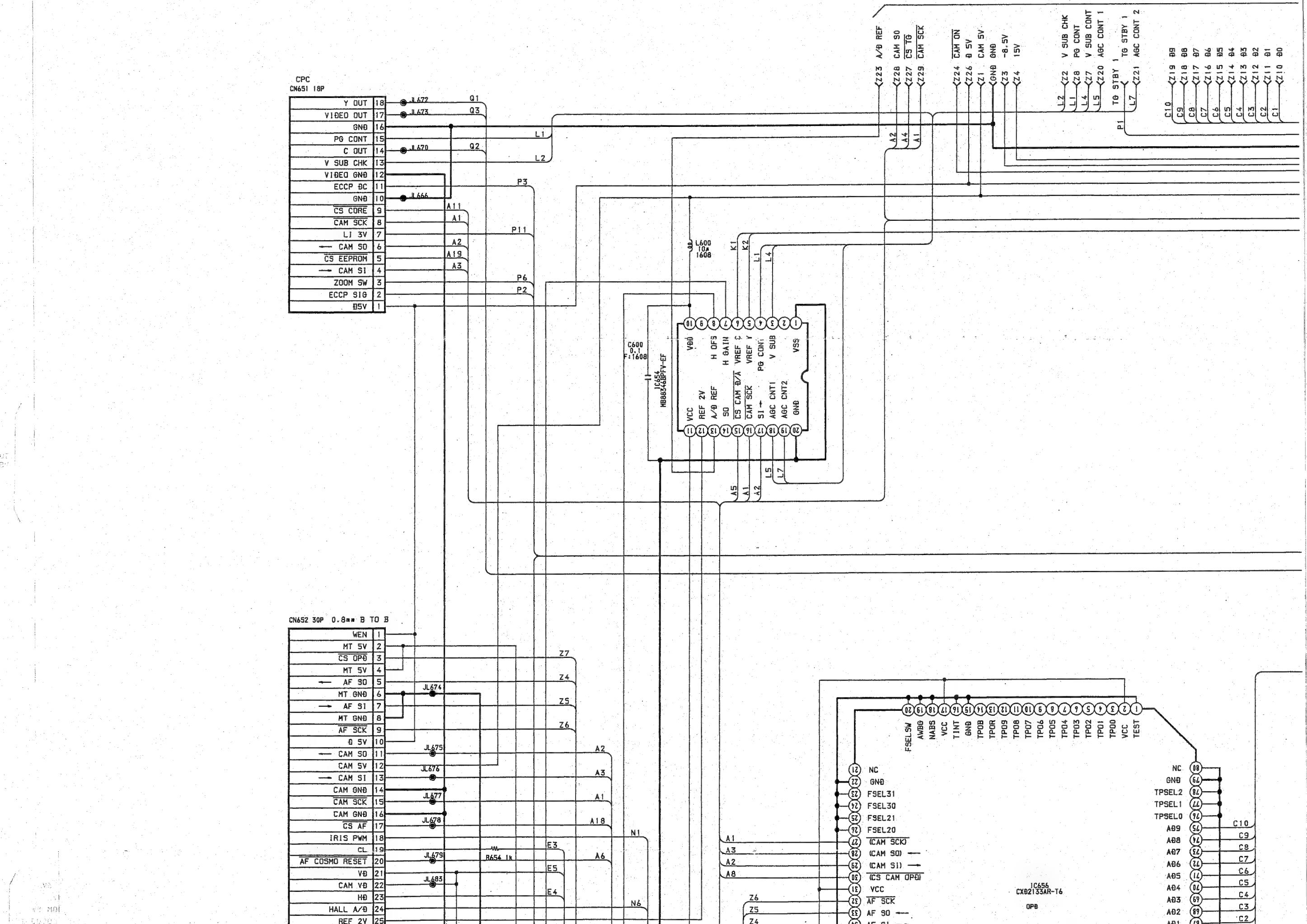
EVI-310 1-649-950-11 (VC-128)

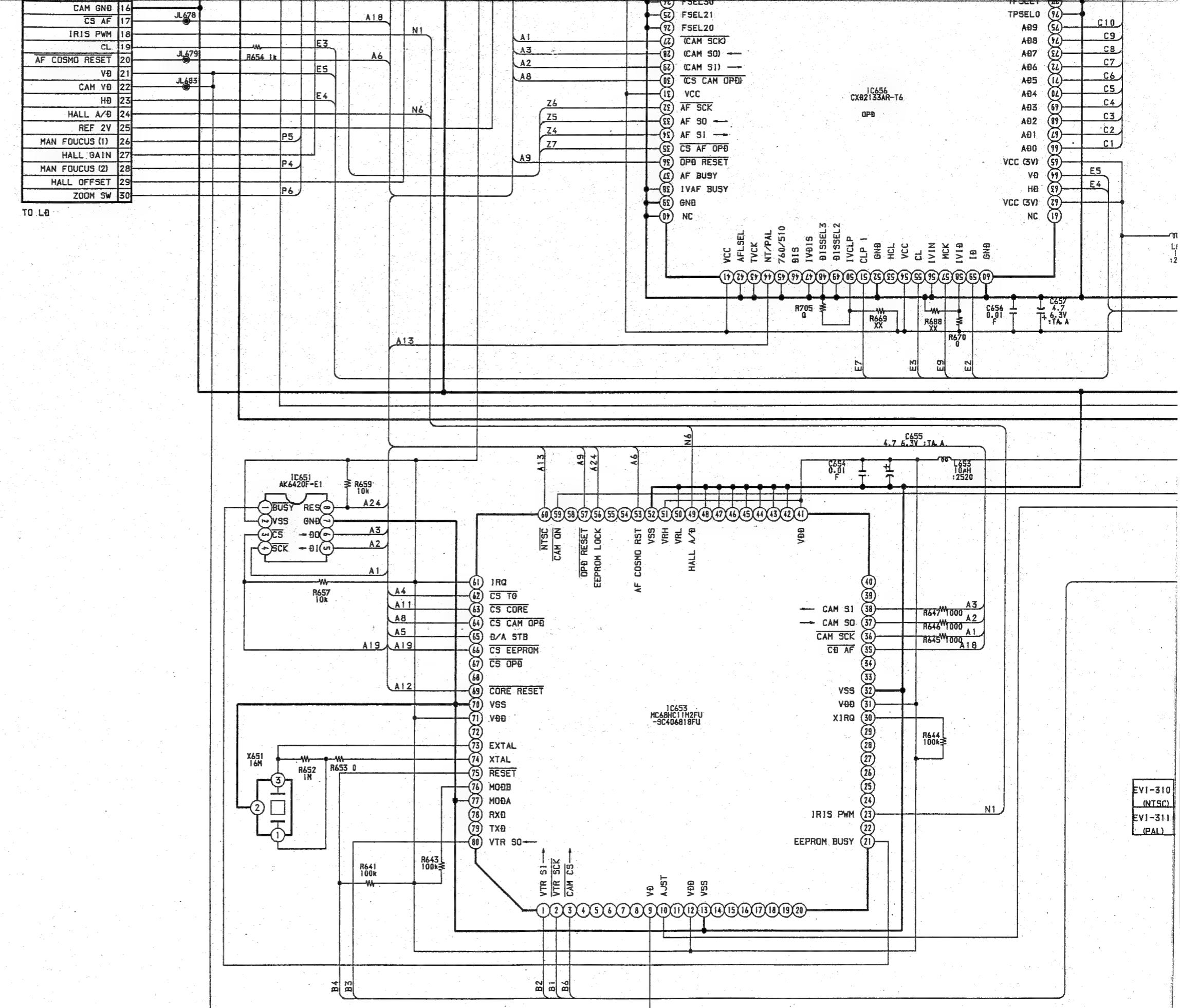
EVI-311 1-649-950-21 (VC-128P)



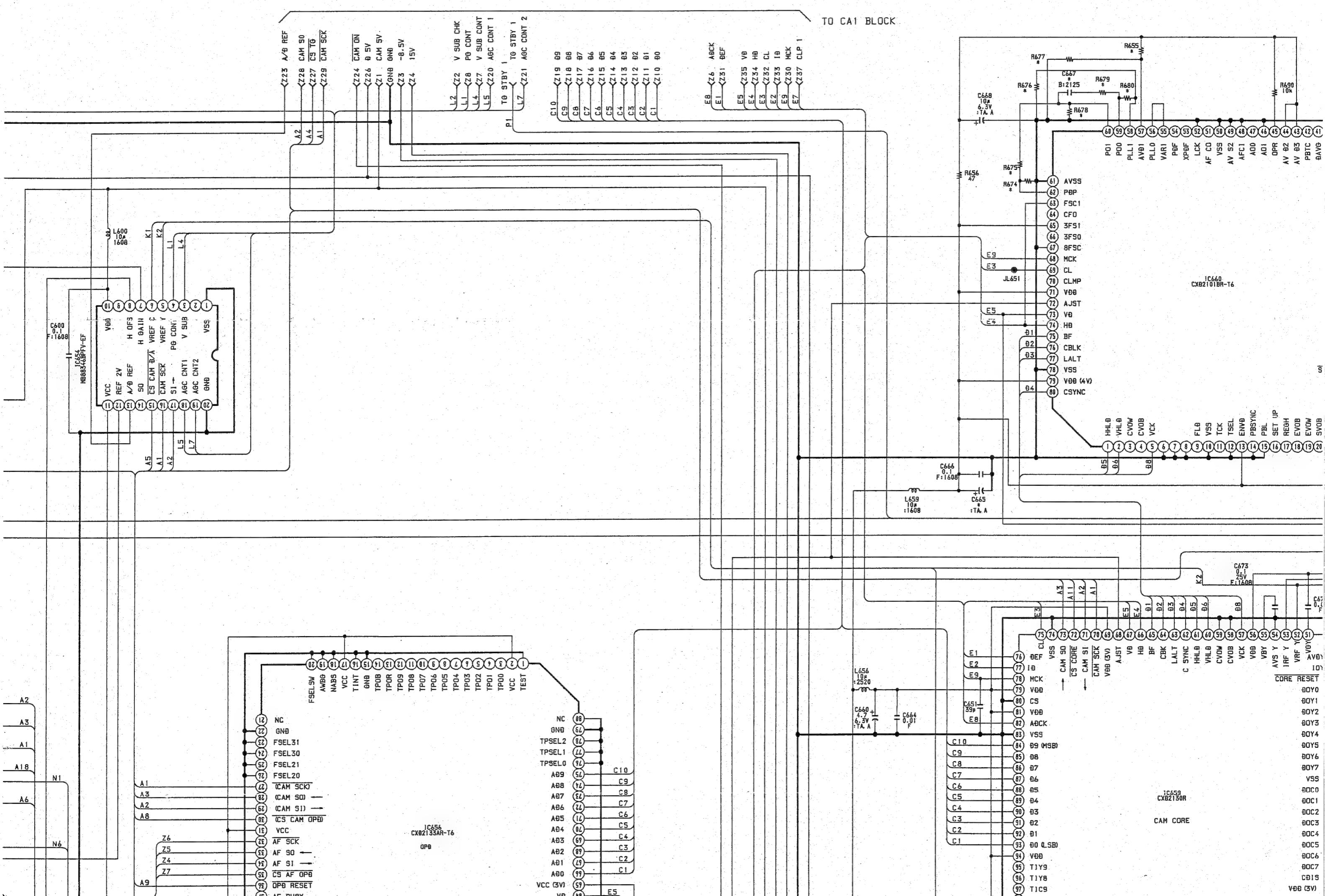
4-3. VC-128 Schematic Diagram(1/5)

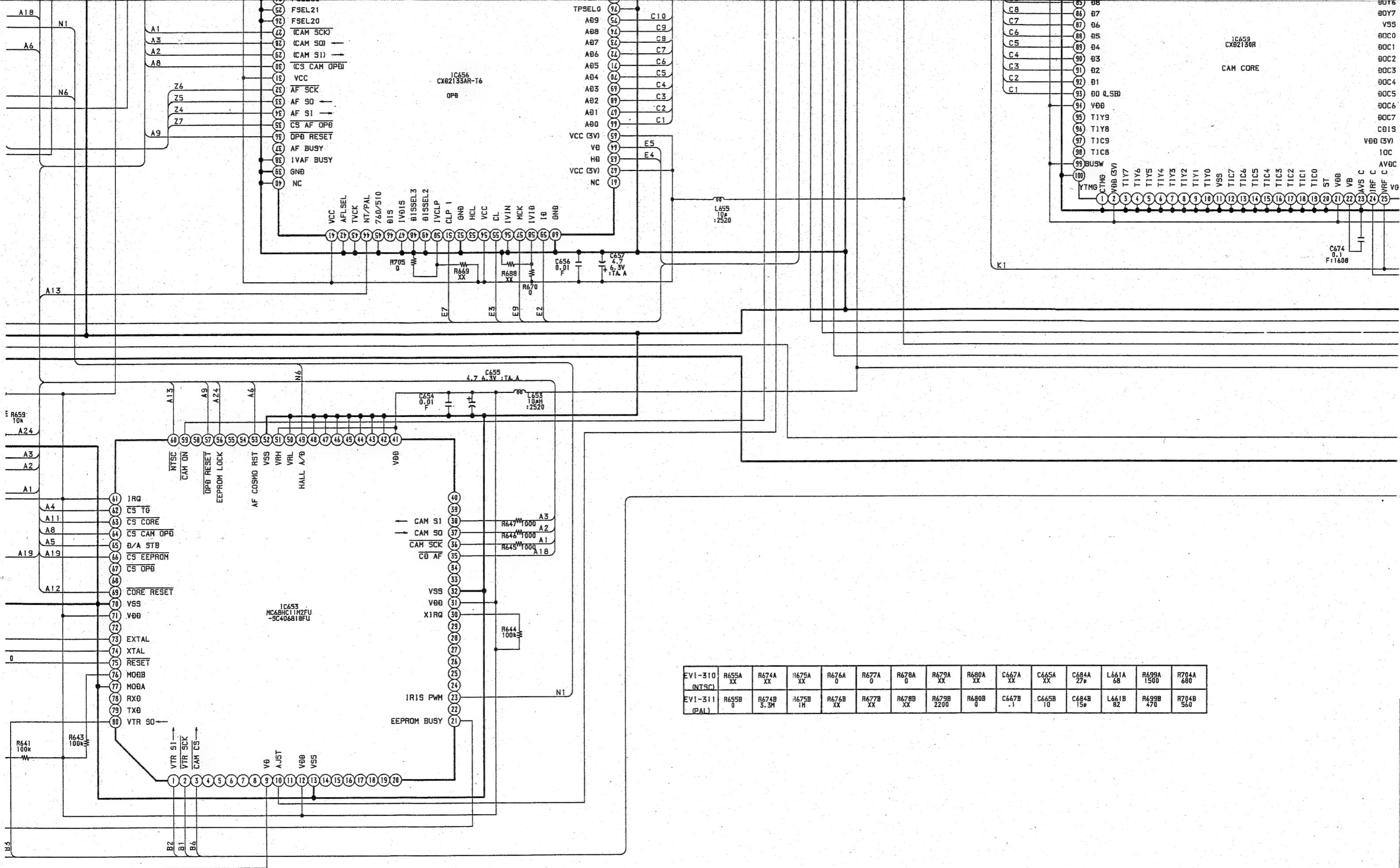
**CONFIDENTIAL**

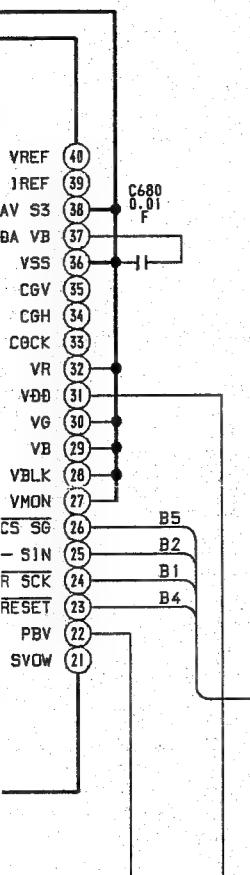




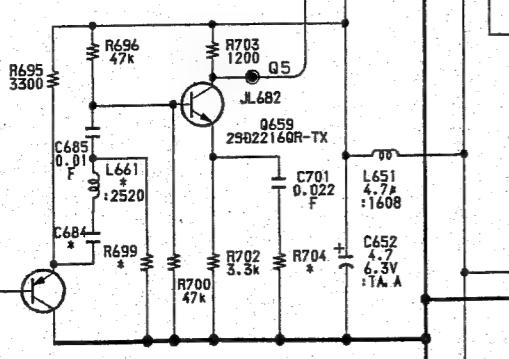
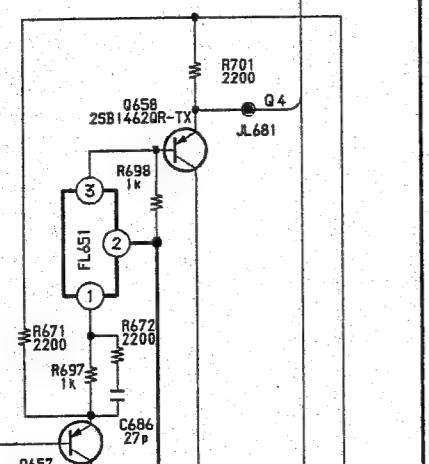
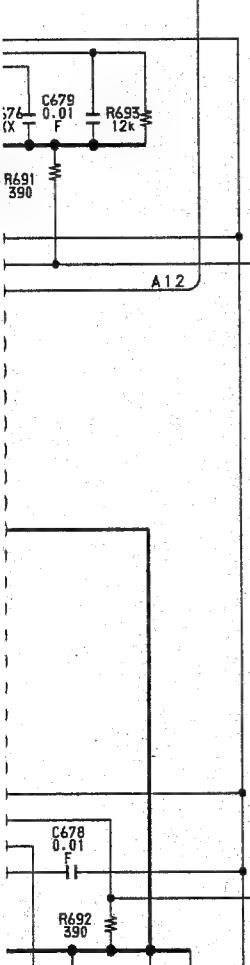
**CONFIDENTIAL**







P10



Q4  
Q5  
Q3  
Q1  
Q2

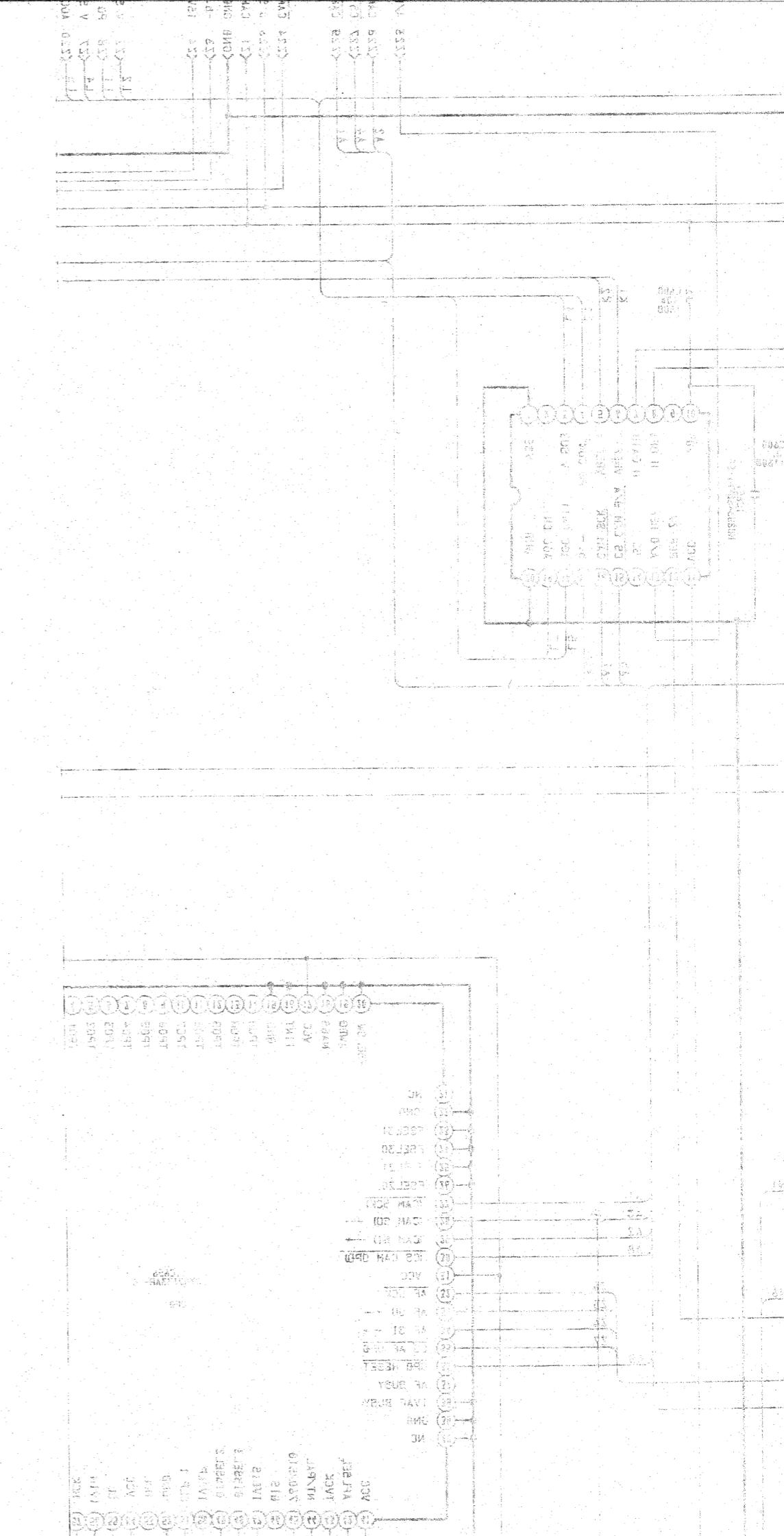
TO  
VS BLOCK

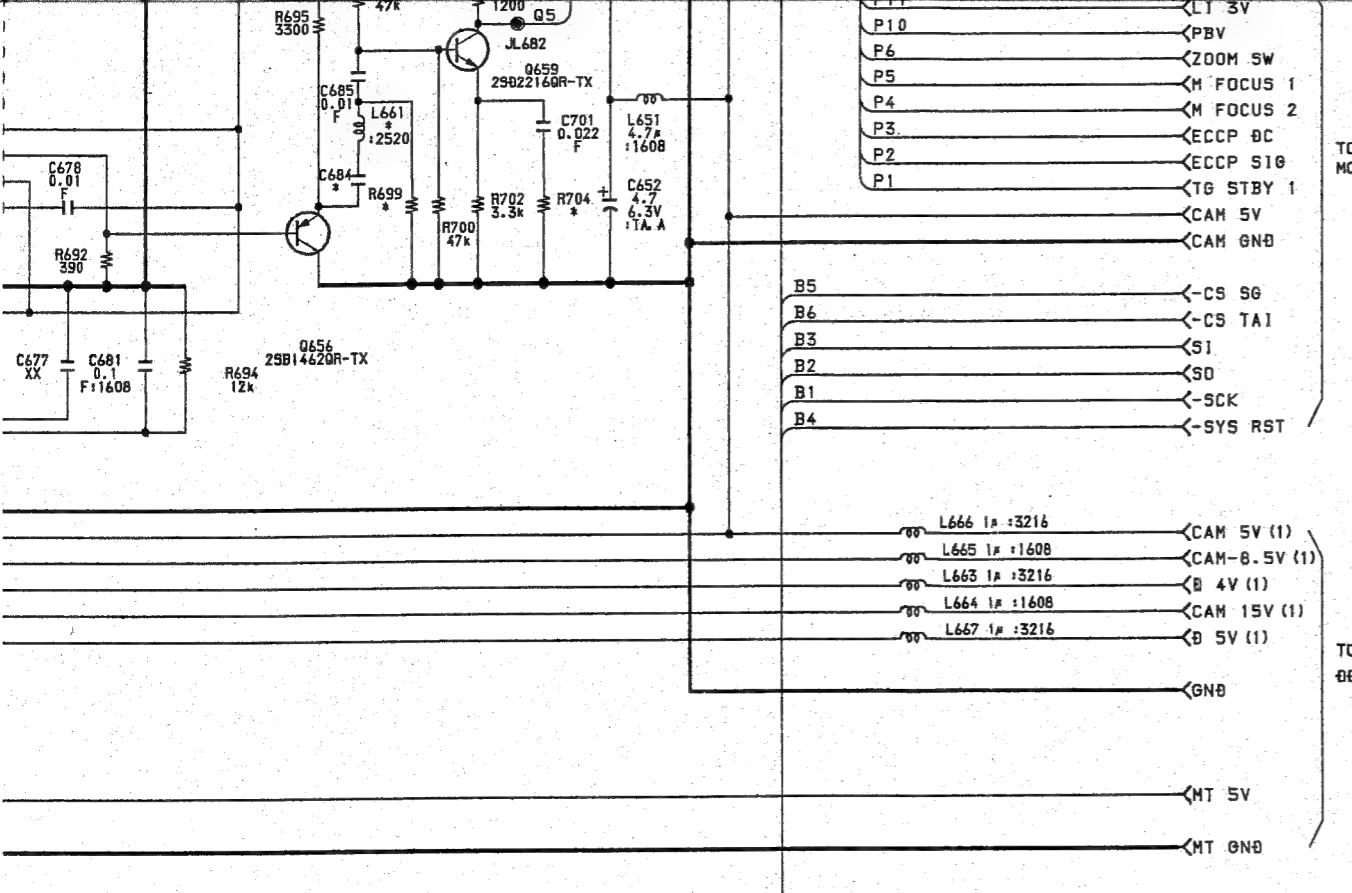
TO  
MC BLOCK

P11  
P10  
P6  
P5  
P4  
P3.  
P2  
P1

<VB  
<LI 3V  
<PBV  
<ZOOM SW  
<M FOCUS 1  
<M FOCUS 2  
<ECCP 8C  
<ECCP S1G  
<TG STBY 1  
<CAM 5V  
<CAM GND

B5  
B6  
B3  
<S1



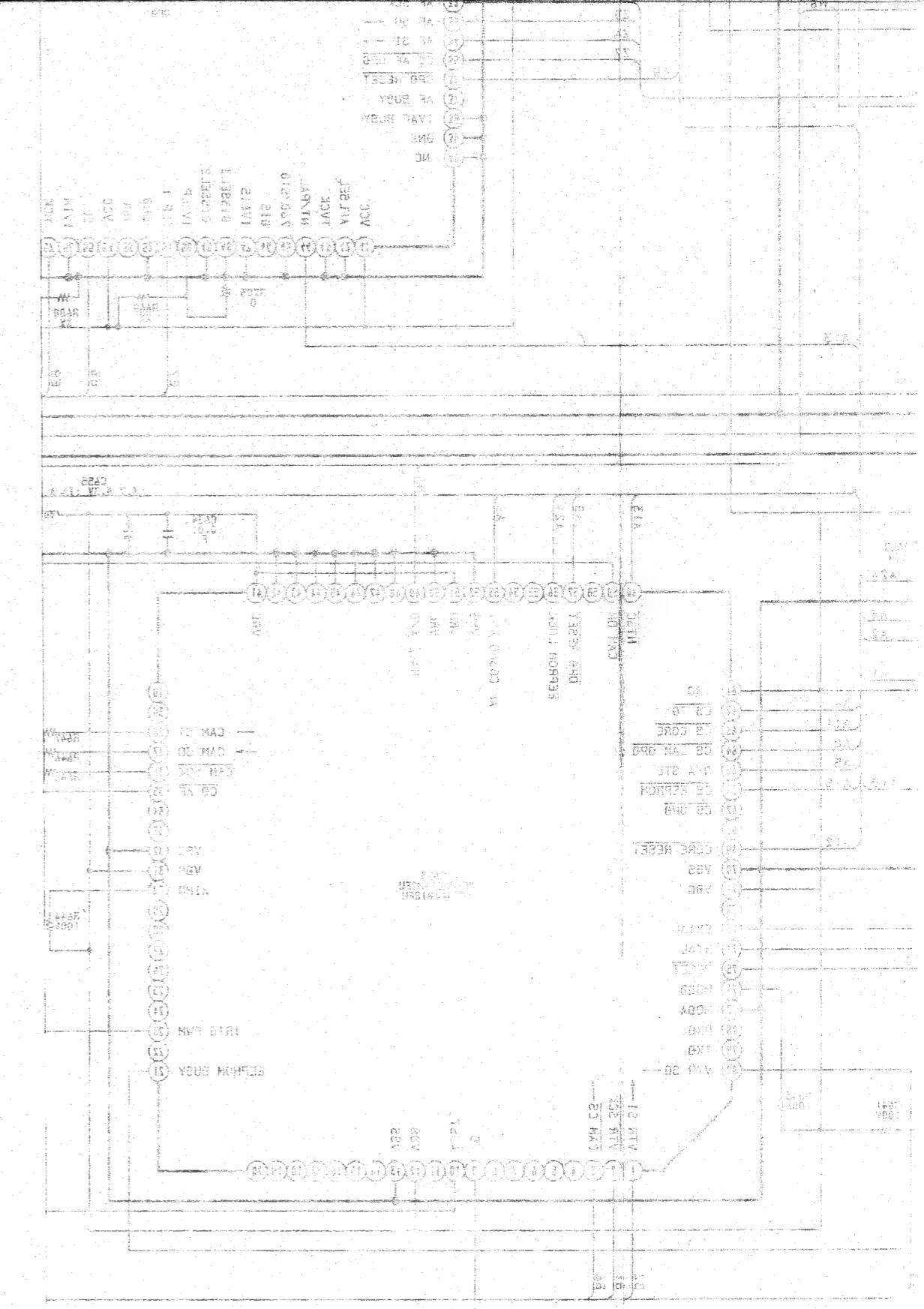


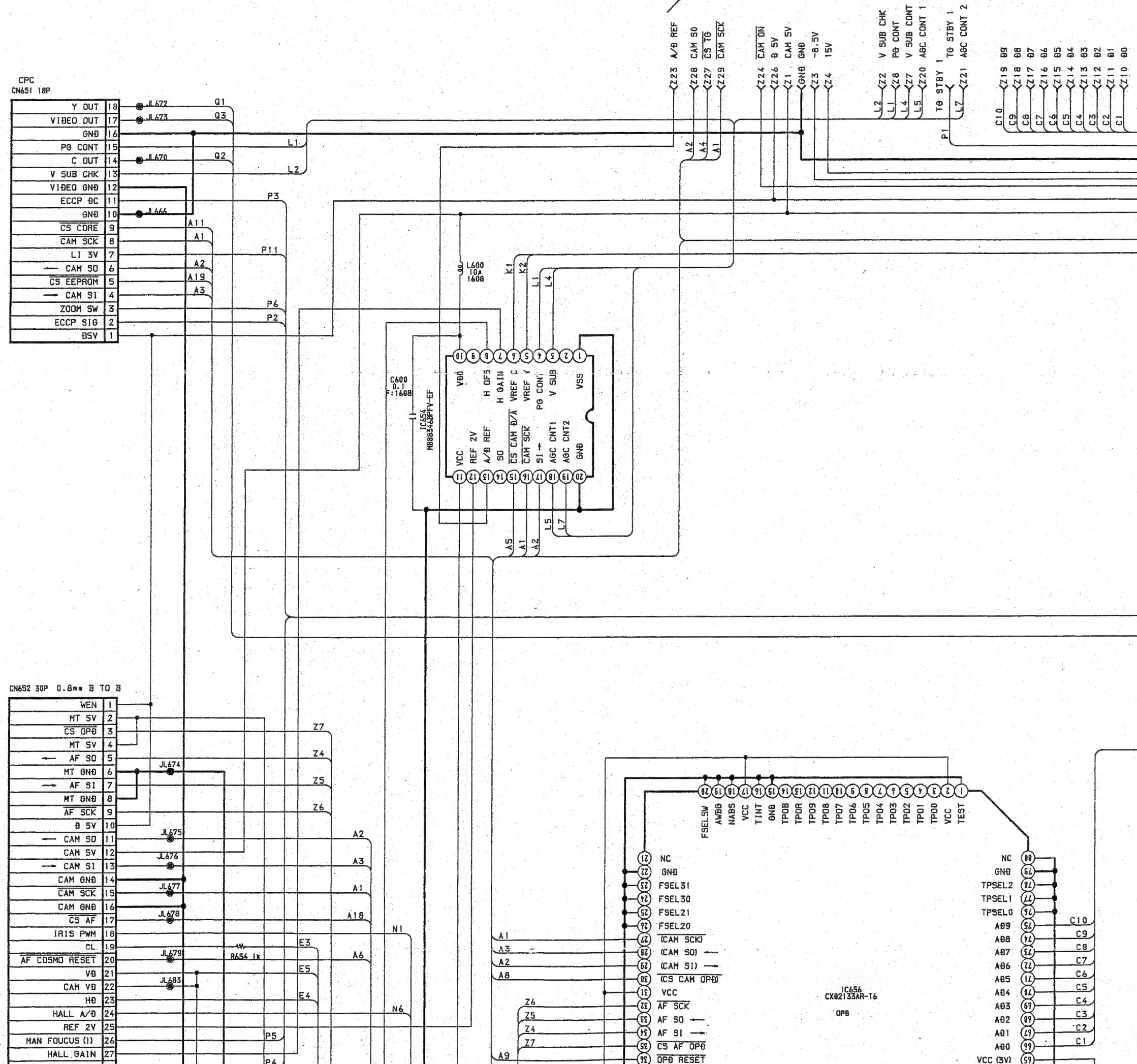
## CAMERA2 BLOCK

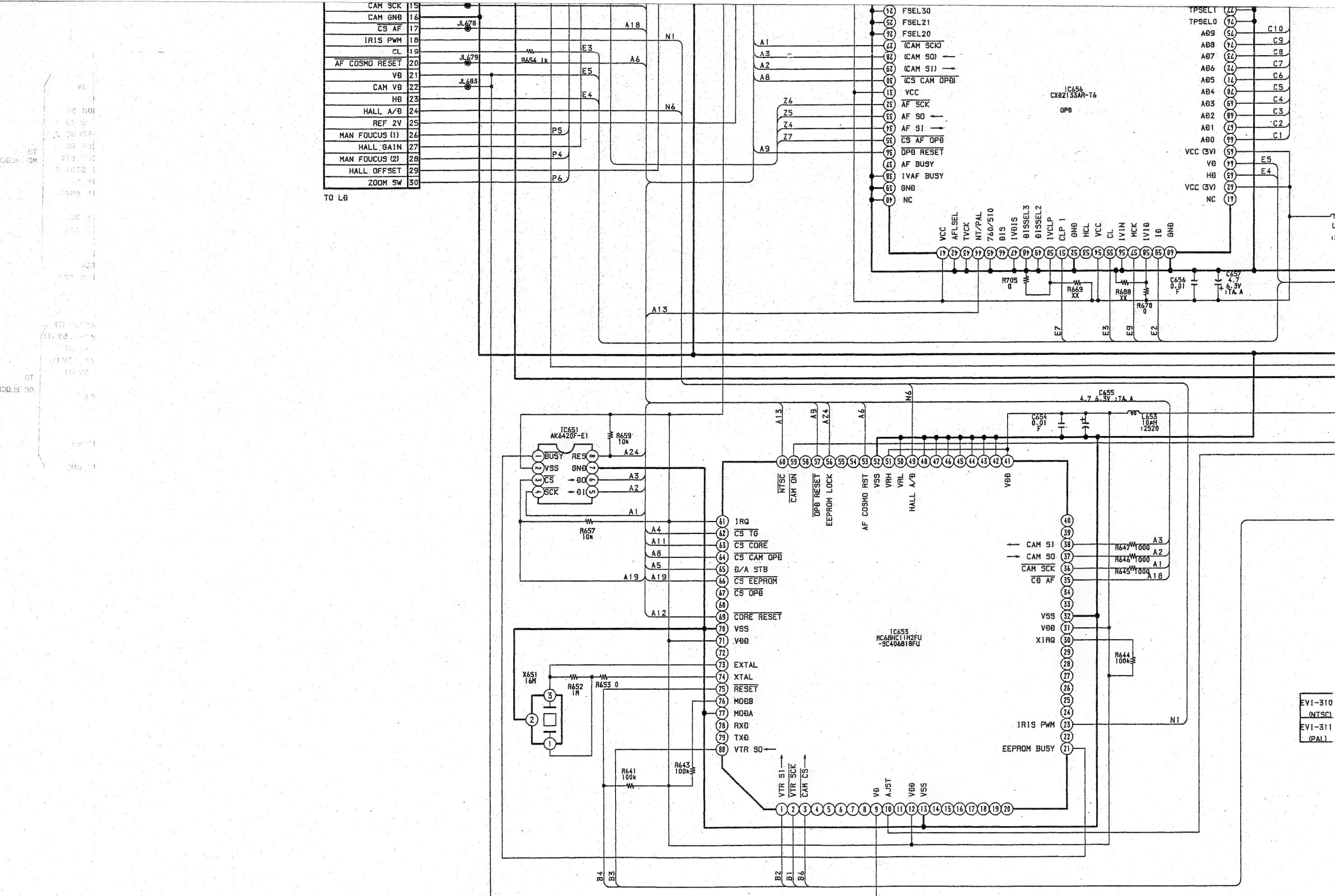
VC-128/128P BOARD (2/5) CA2 BLOCK  
 EVI-310 1-649-950-11 (VC128)  
 EVI-311 1-649-950-21 (VC-128P)

**CONFIDENTIAL**

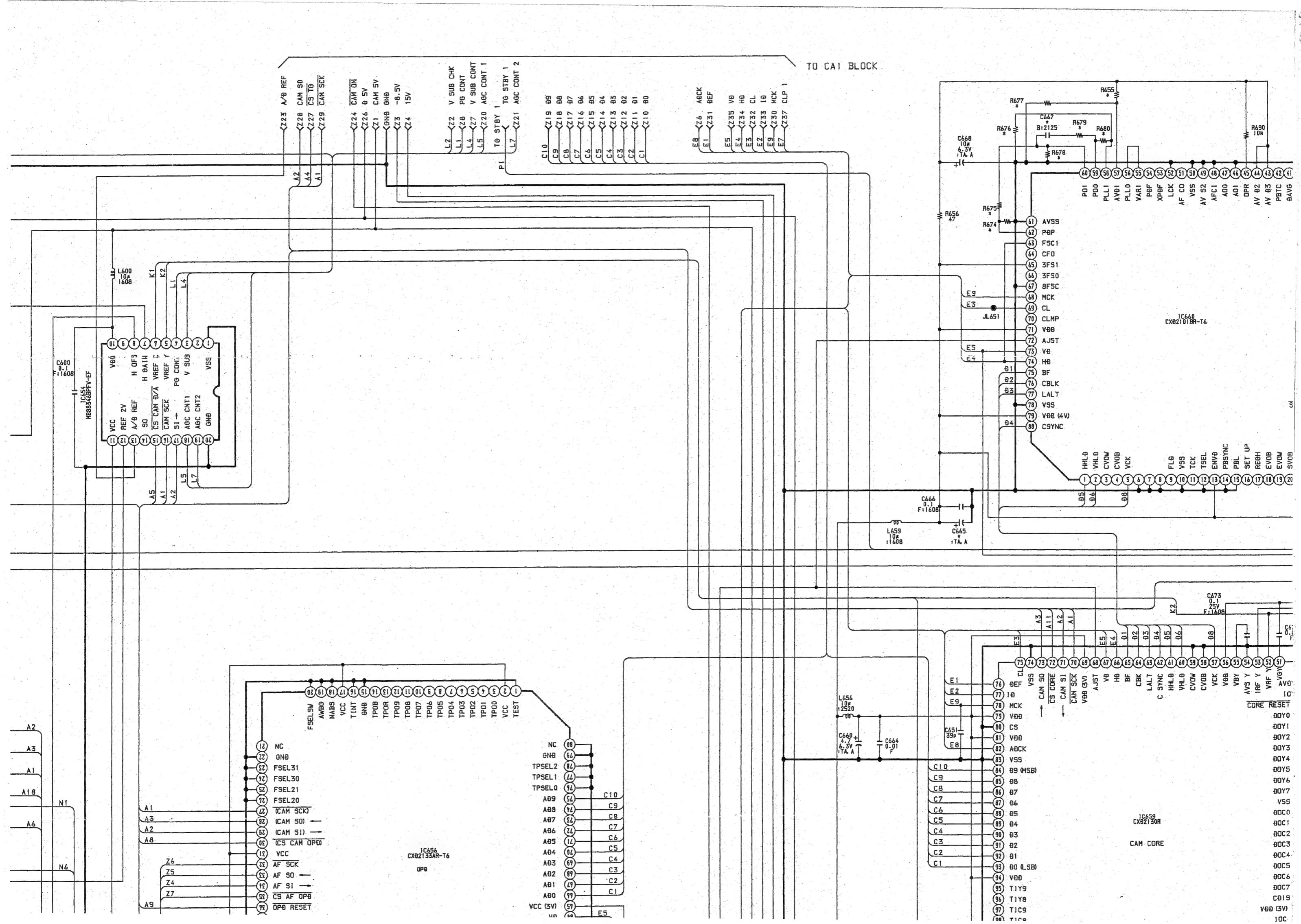
4-3. VC-128 Schematic Diagram(2/5)

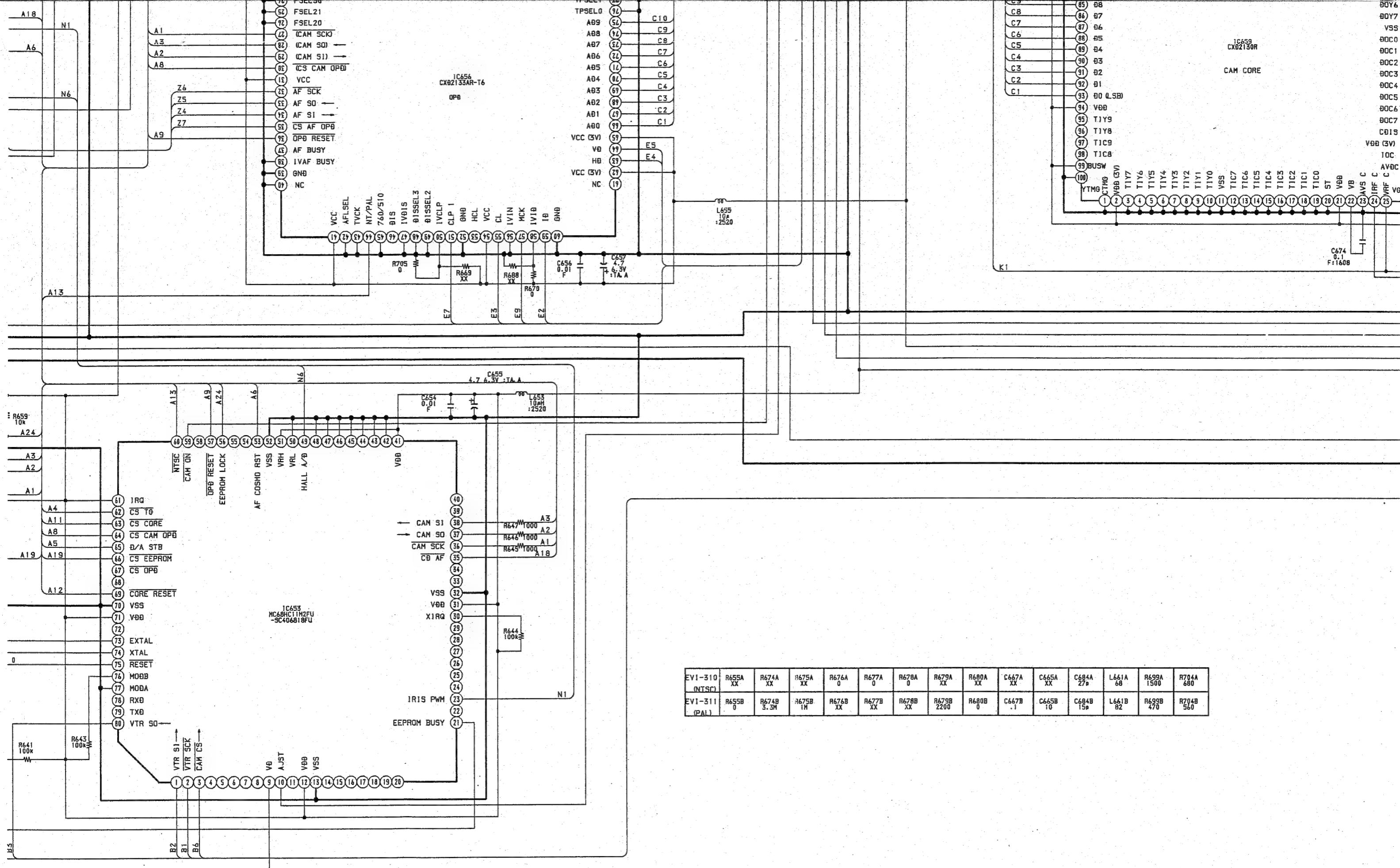




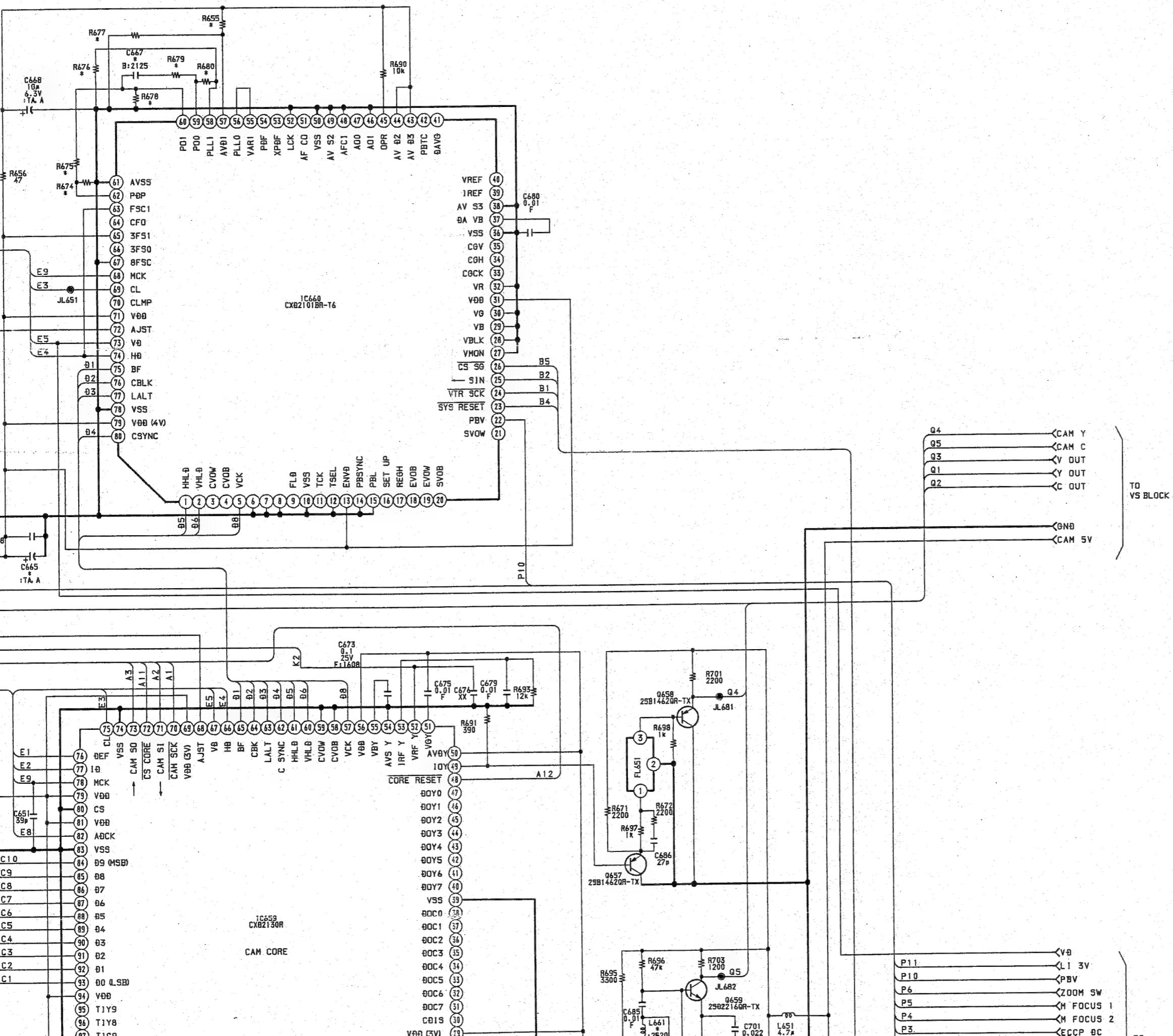


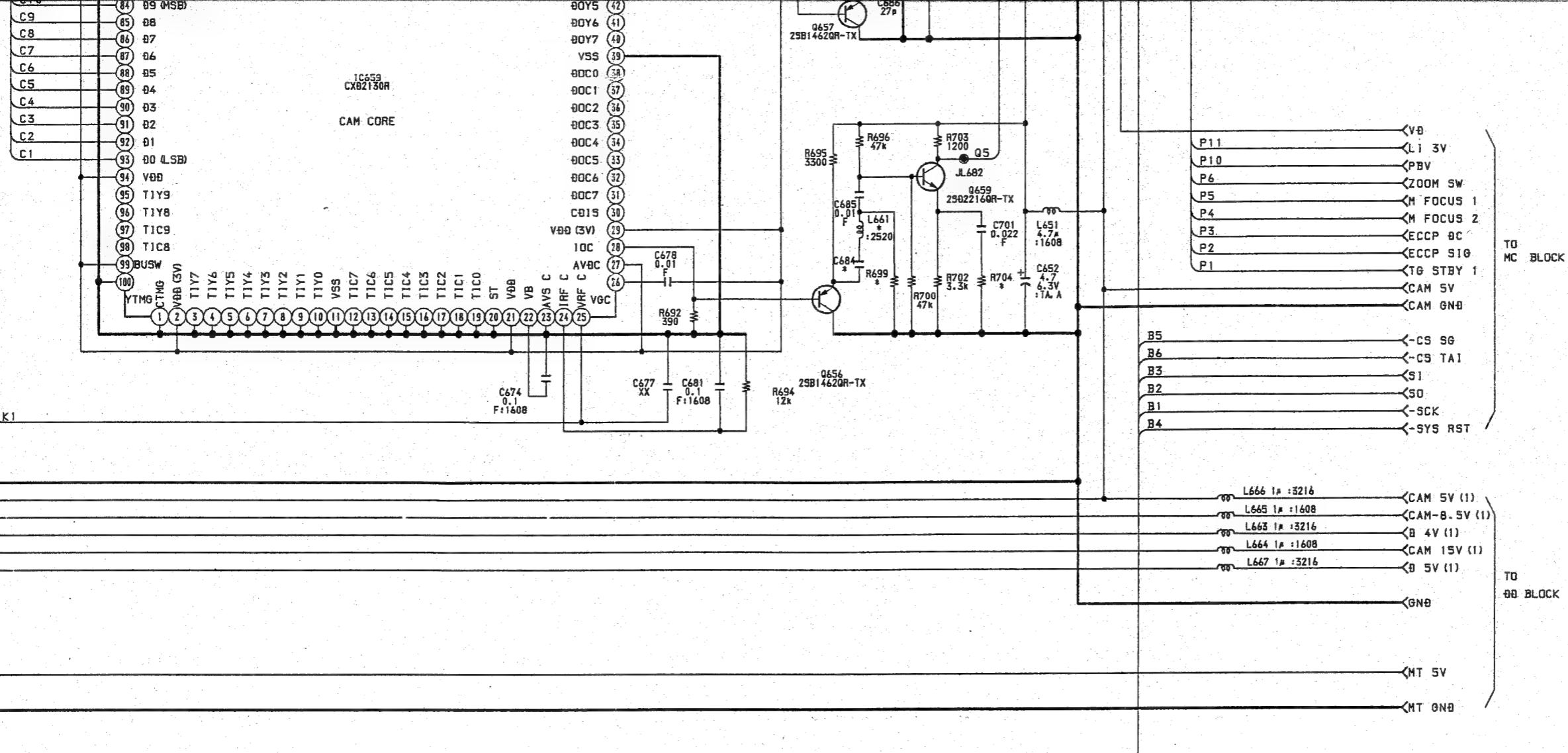
**COMED**





CA1 BLOCK





R678A 0	R679A XX	R680A XX	C667A XX	C665A XX	C684A 27P	L661A 68	R699A 1500	R704A 680
R678B XX	R679B 2200	R680B 0	C667B -1	C665B 10	C684B 15P	L661B 82	R699B 470	R704B 560

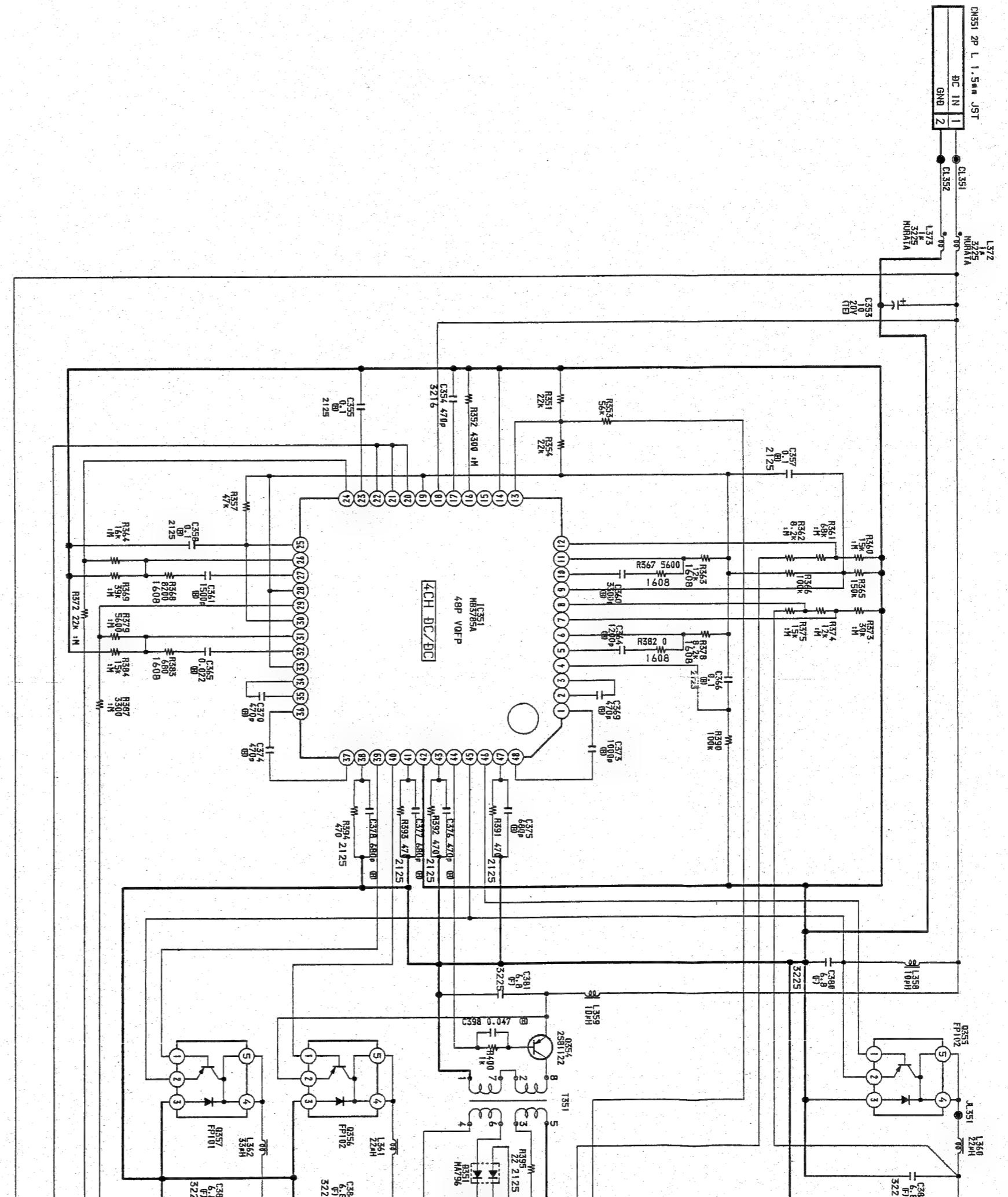
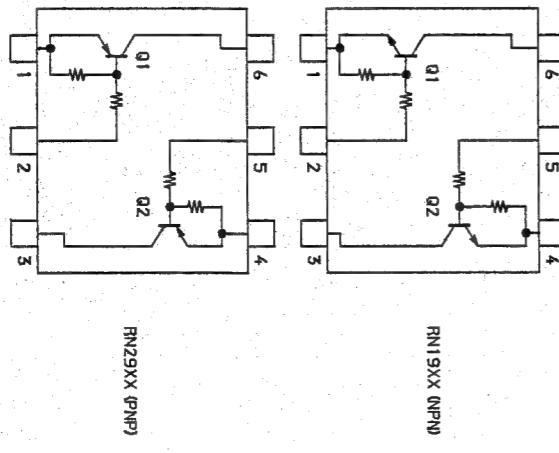
CAMERA2 BLOCI

VC-128/128P BOARD (2/5) CA2 BLOCK

EVI-310 1-649-950-11 (VC128)

EVI-311 1-649-950-21 (VC-128P)

**CONFIDENTIAL**



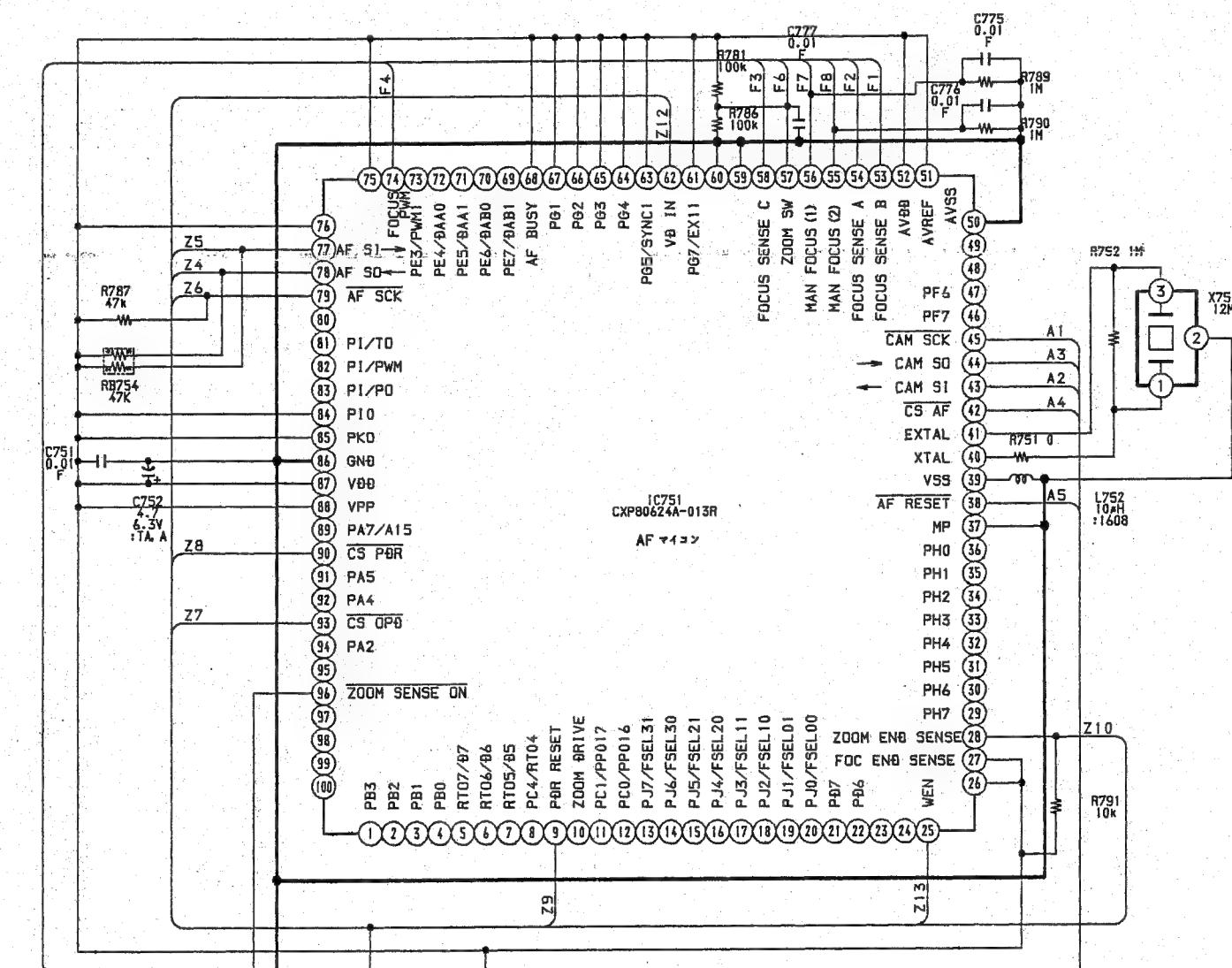
VC 138 Schematic Diagram(5/5)

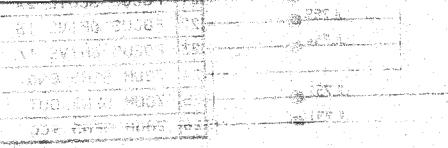
**CONFIDENTIAL**

DC-DC CONVERTER BLOCK

VC-128/128P BOARD (5/5) DB BLOCK

EVI-310 1-649-950-11 (VC-128)





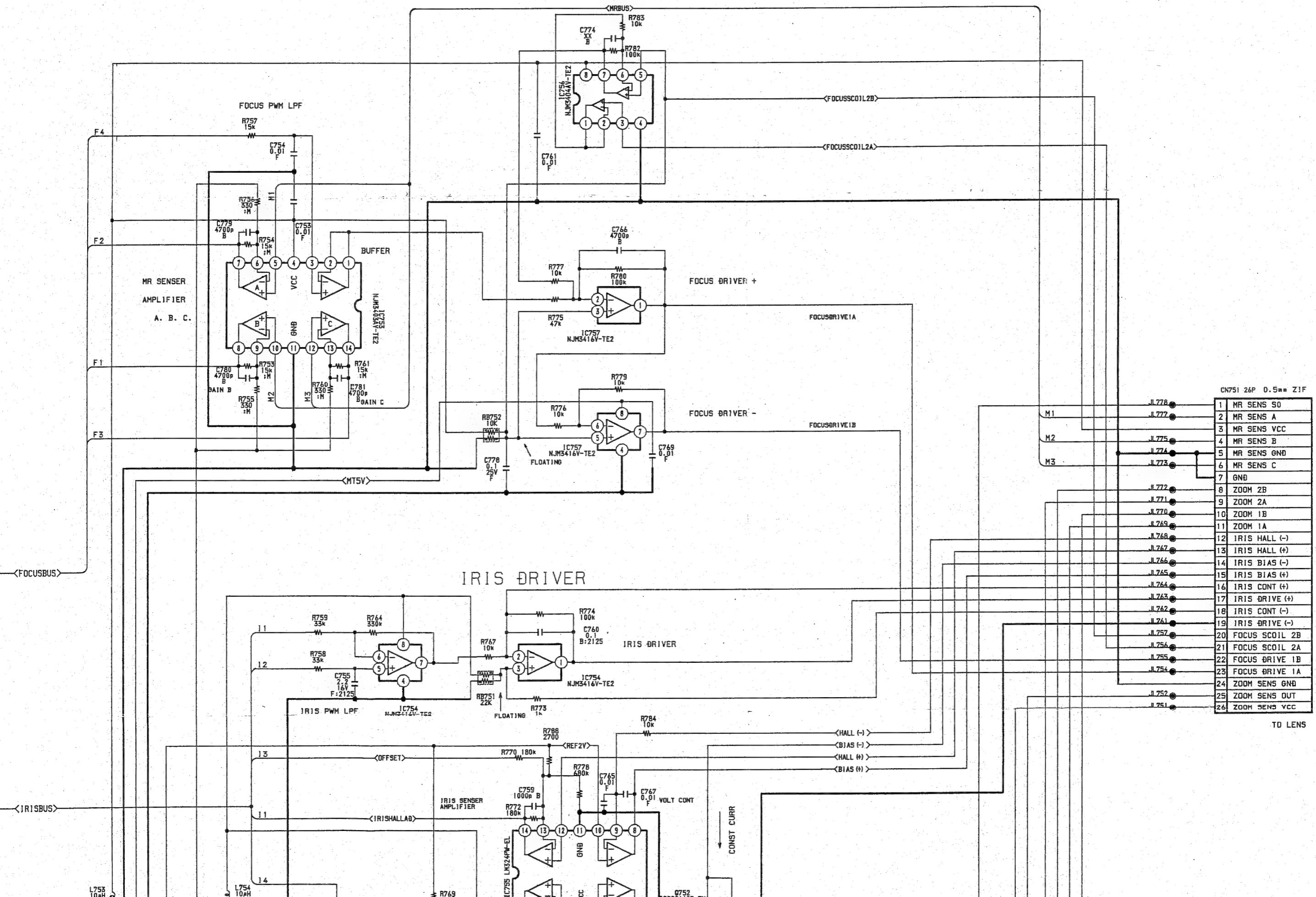
CN752 30P 0.8mm B TO B

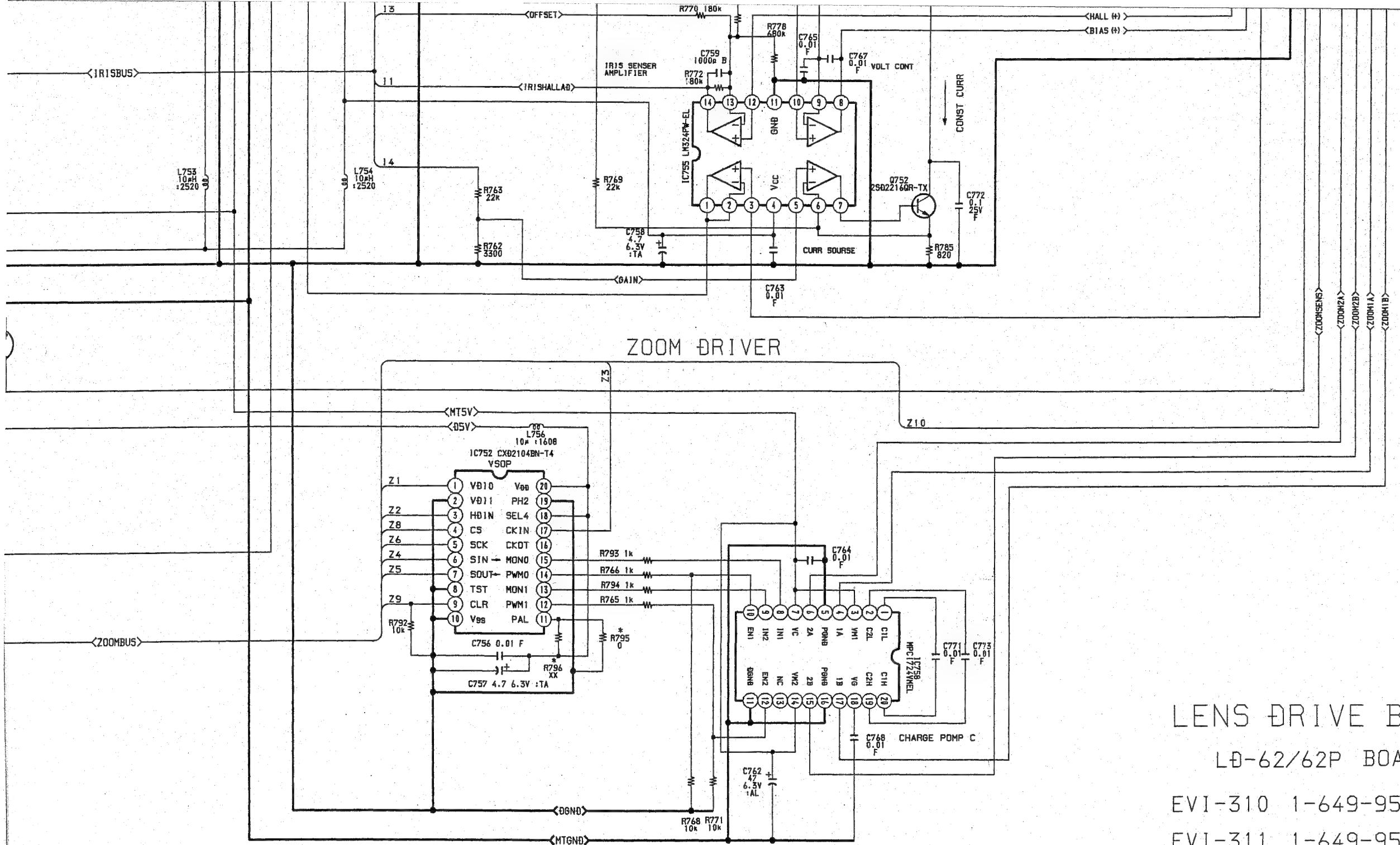
WEN	1	Z13
MT 5V	2	JL799
CS OPB	3	JL797
MT 5V	4	
— AF SO	5	JL795
— MT GND	6	JL794
— AF SI	7	JL794
— MT GND	8	
AF SCK	9	JL792
0 5V	10	JL793
— CAM SO	11	JL790
CAM 5V	12	JL791
— CAM SI	13	JL789
CAM GND	14	
CAM SCK	15	JL788
CAM GND	16	
CS AF	17	JL786
IRIS PWM	18	JL787
CL	19	JL784
AF COSMO RESET	20	JL785
Vb	21	JL782
CAM Vb	22	JL783
Hb	23	JL780
HALL A/B	24	JL781
REF 2V	25	JL776
MAN FOCUS (1)	26	JL779
HALL GAIN	27	JL759
MAN FOCUS (2)	28	JL760
HALL OFFSET	29	JL753
ZOOM SW	30	JL758

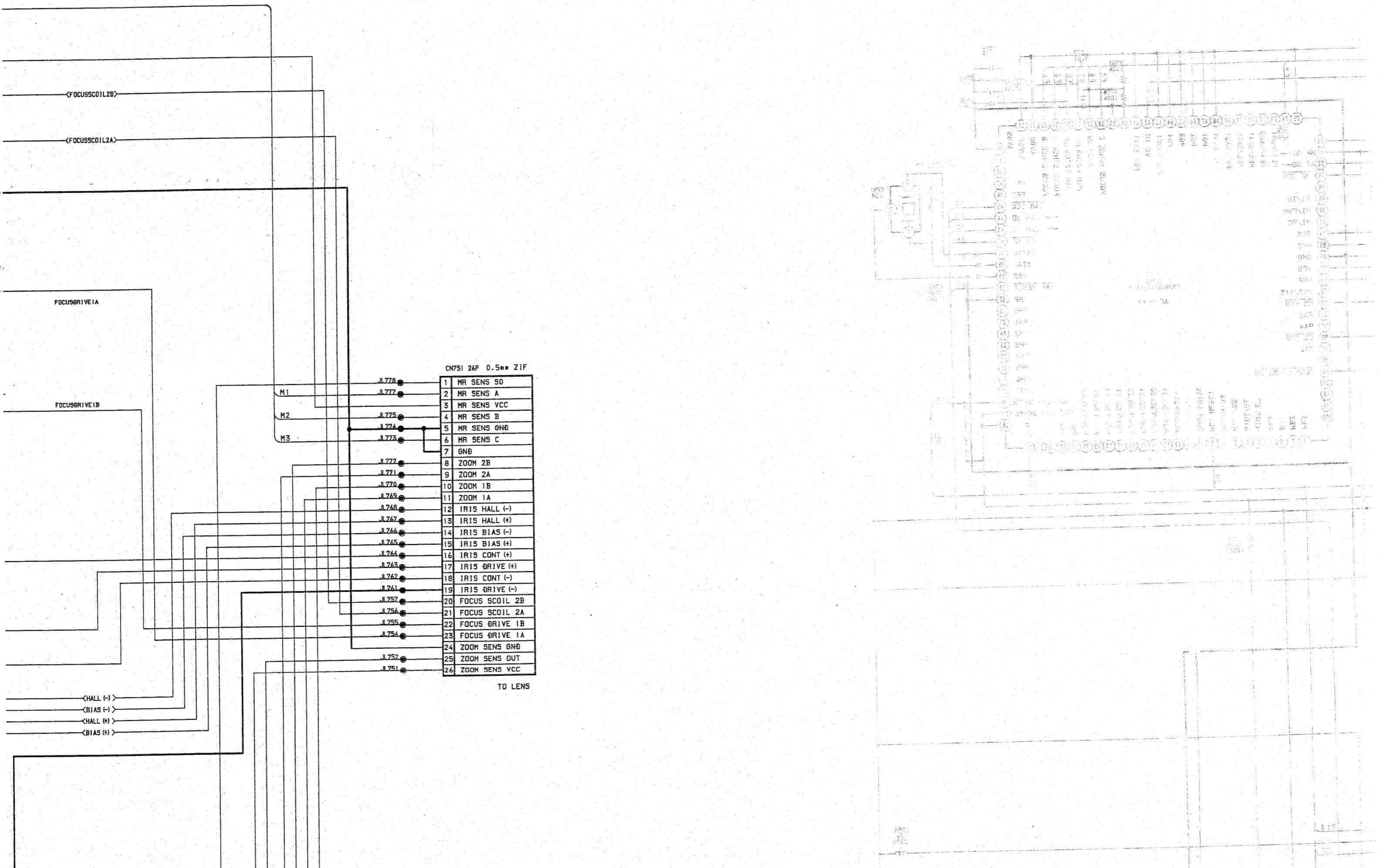
TO CA2 BLOCK

EV1-130 (NTSC)	EV1-131 (PAL)
R795A 0	R795B XX
R796A XX	R796B 0

## FOCUS DRIVER







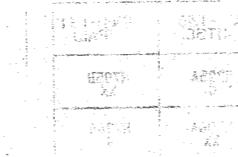


## LENS DRIVE BLOCK

LD-62/62P BOARD

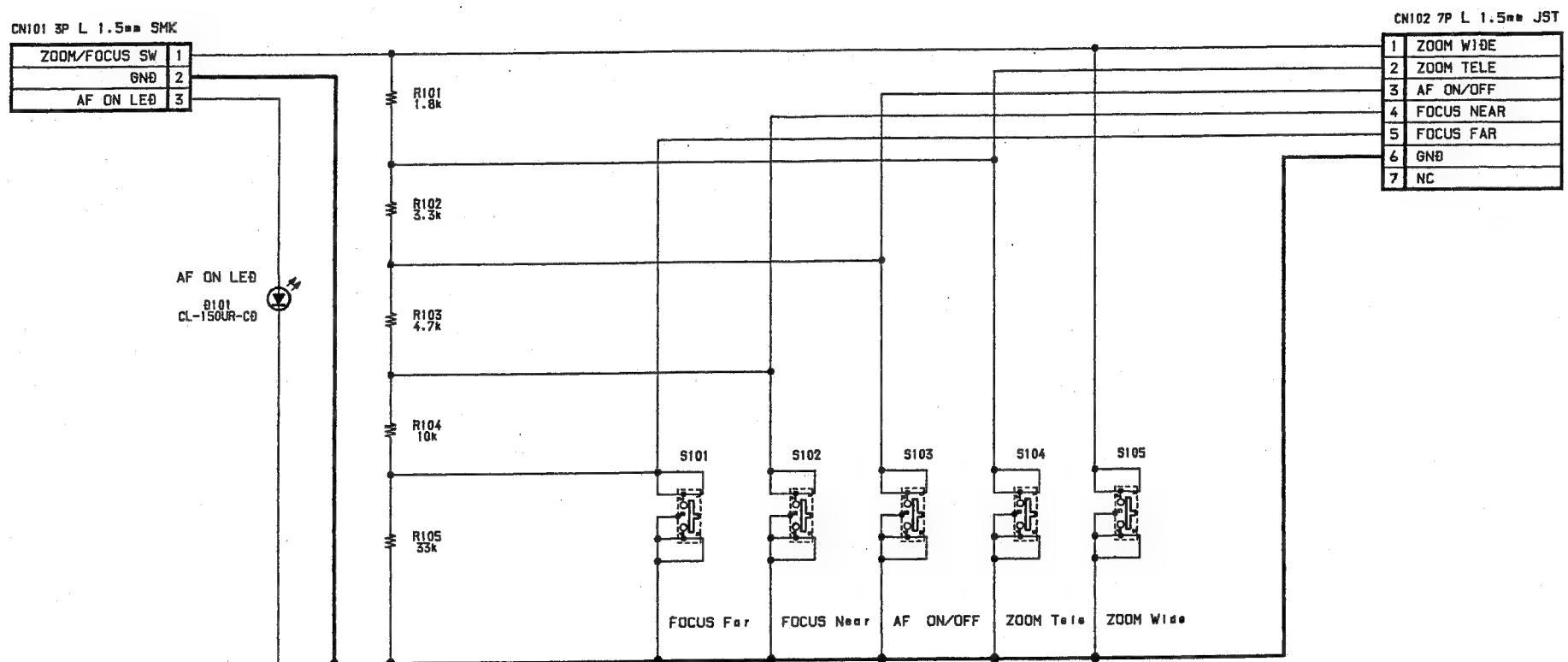
EVI-310 1-649-951-11 (LD-62)

EVI-311 1-649-951-21 (LD-62P)



**CONFIDENTIAL**

4-4. LD-62 Schematic Diagram



## FUNCTION BLOCK CONTROL

FK-56/56P BOARD

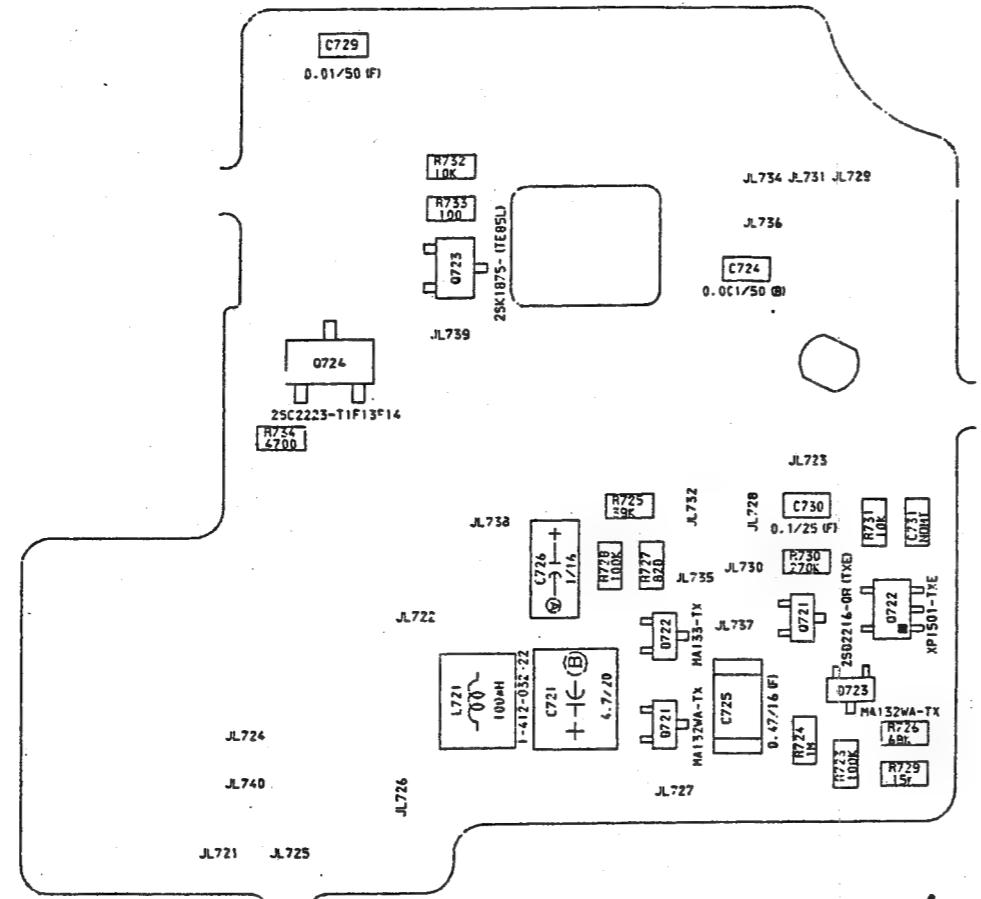
EVI-310 1-649-952-11 (FK-56)

EVI-311 1-649-952-21 (FK-56P)

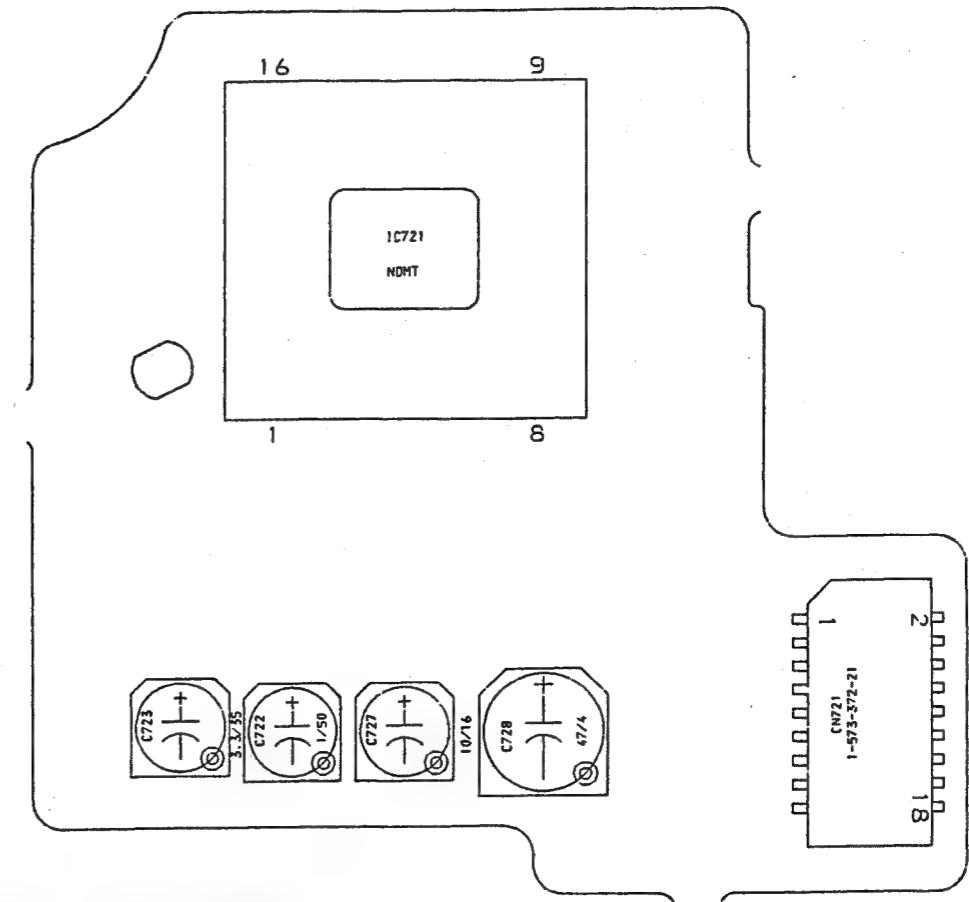
**CONFIDENTIAL**

4-5. FK-56 Schematic Diagram

SIDE B



SIDE A

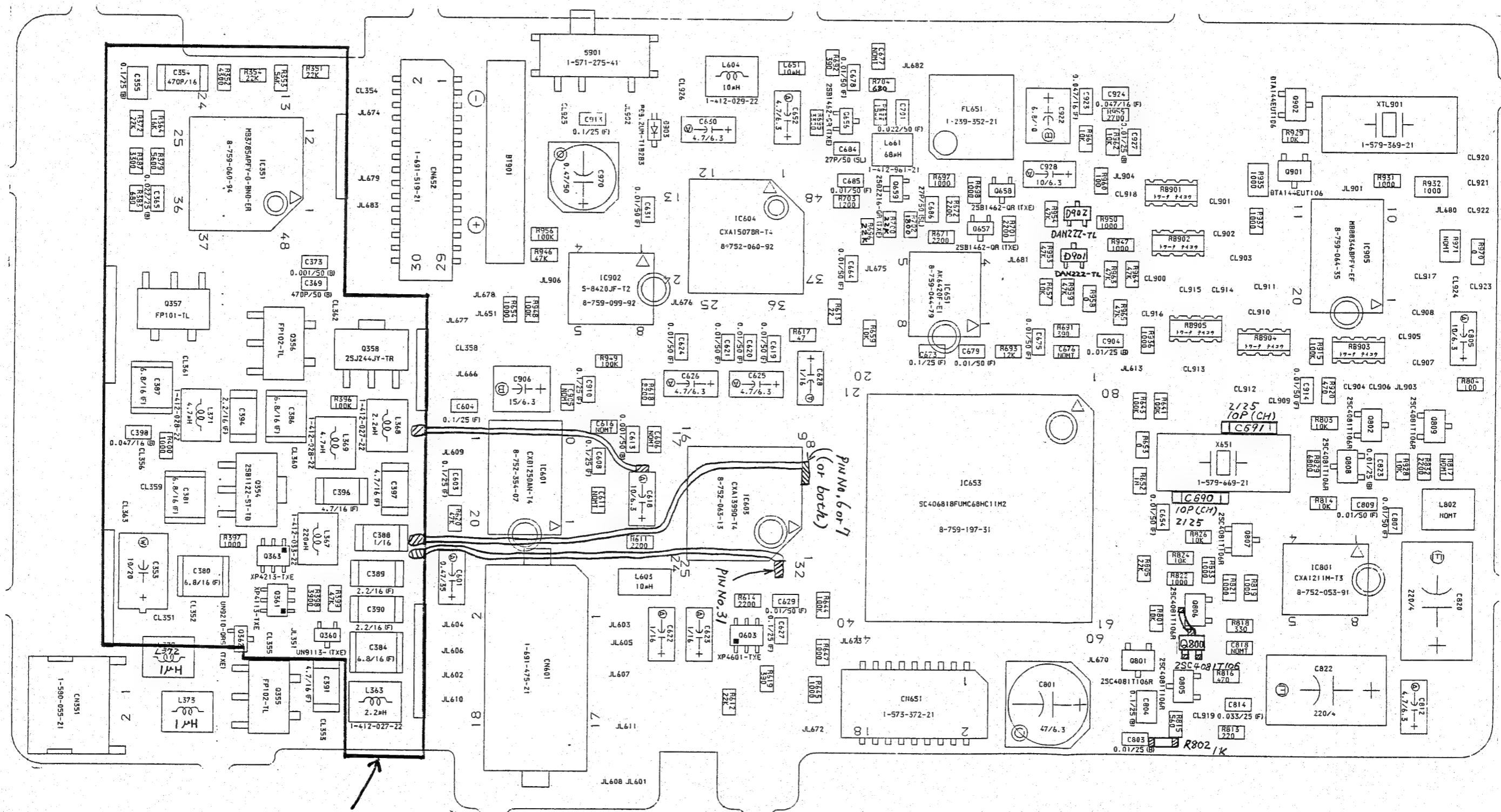


CD-99 / 99P BOARD

## 5-1. CD-99 PWB Mounting Diagram

# SIDE B

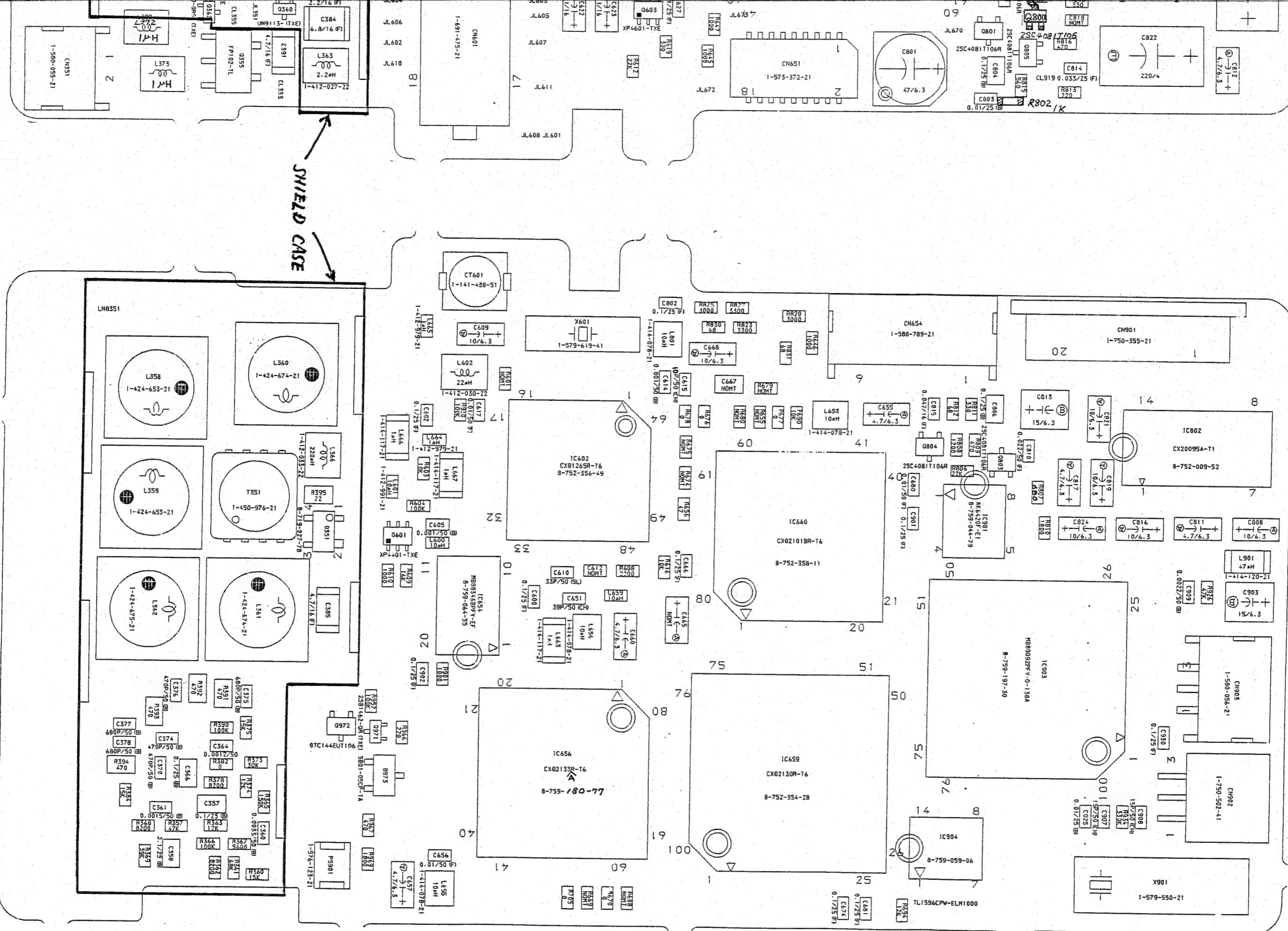
VC-128/128

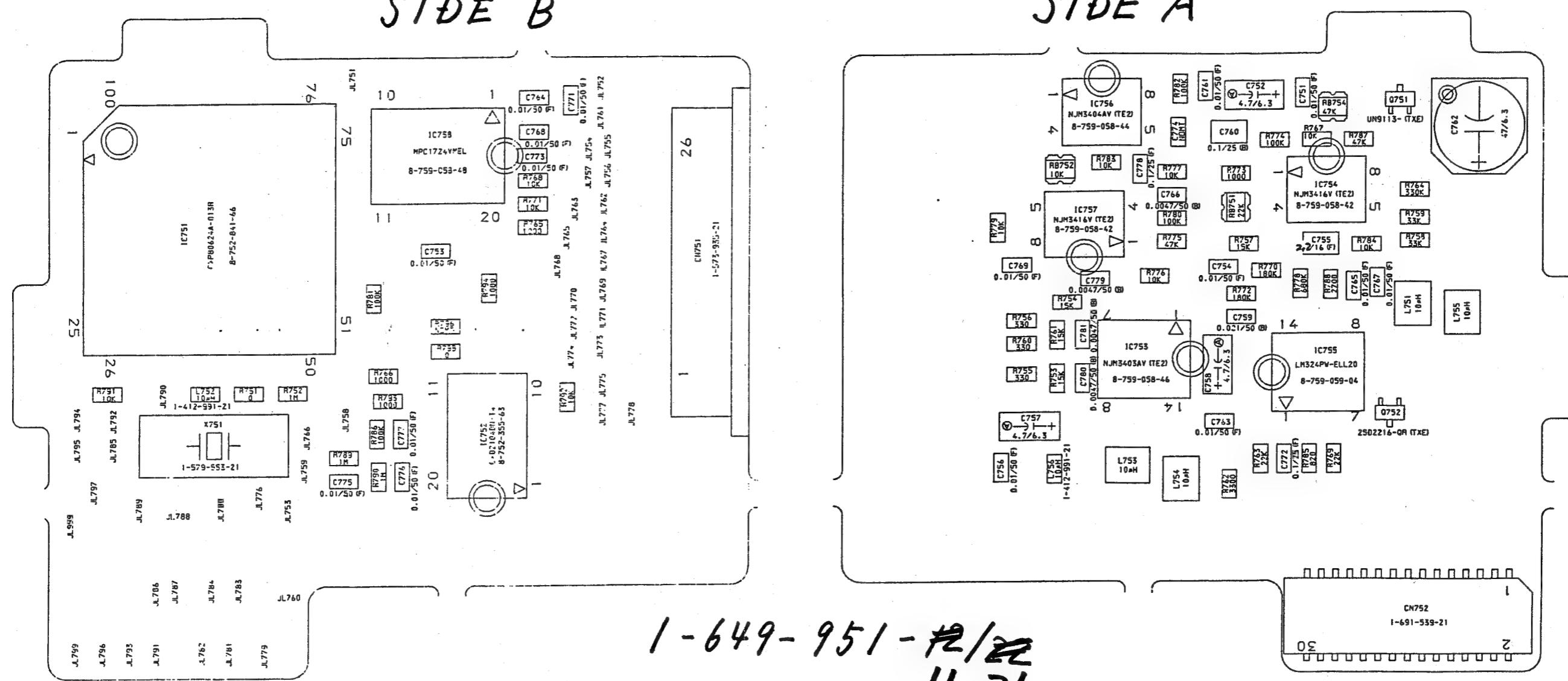


SIDE A

## 5-2 VC-128 PWB Mounting Diagram

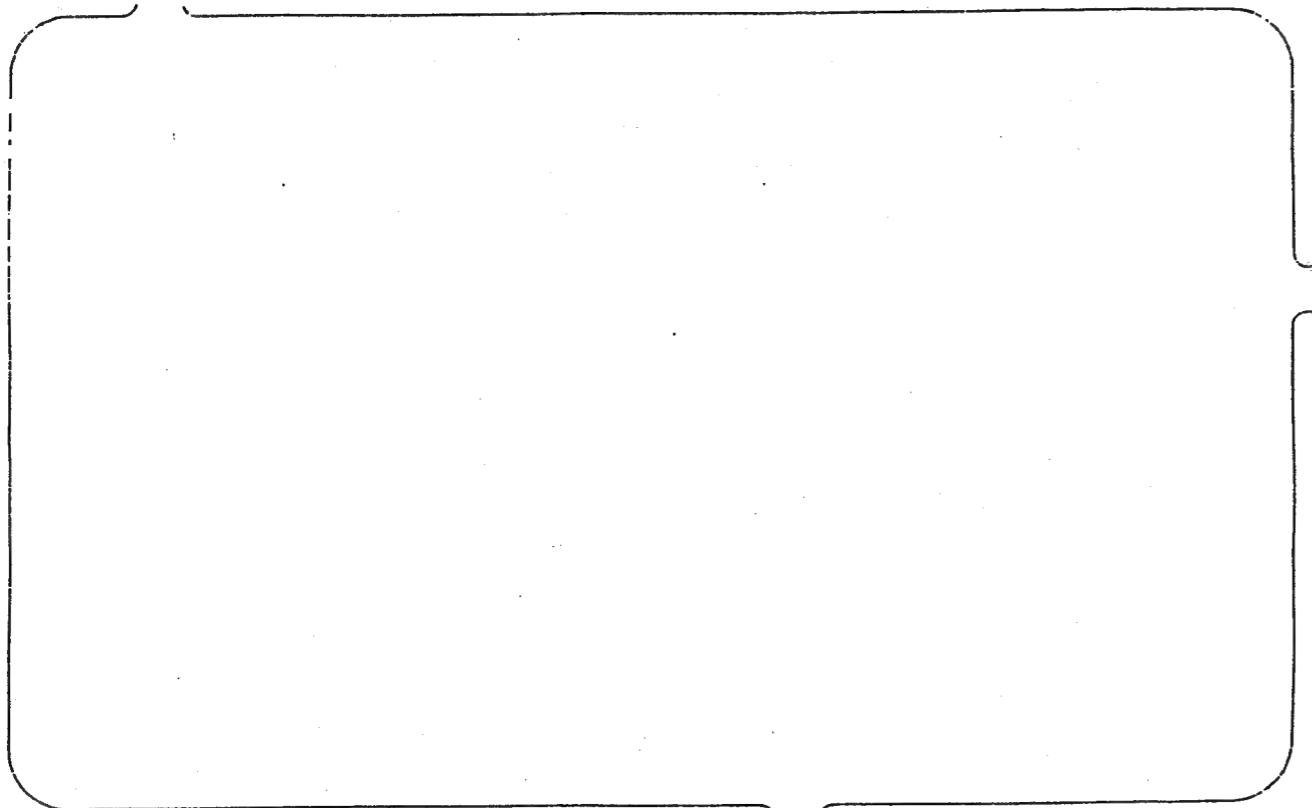
1-649-950-1121



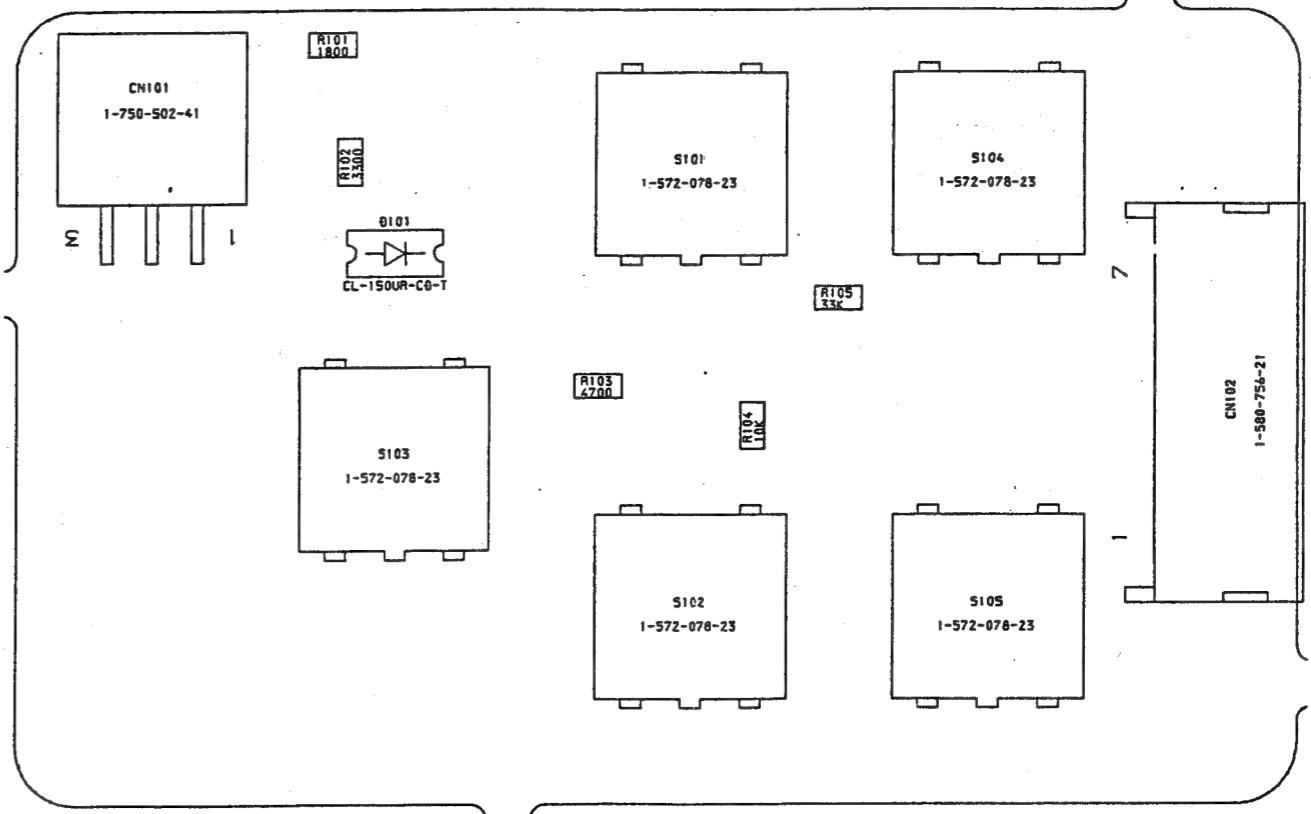


5-3. LD-62 PWB Mounting Diagram

SIDE B



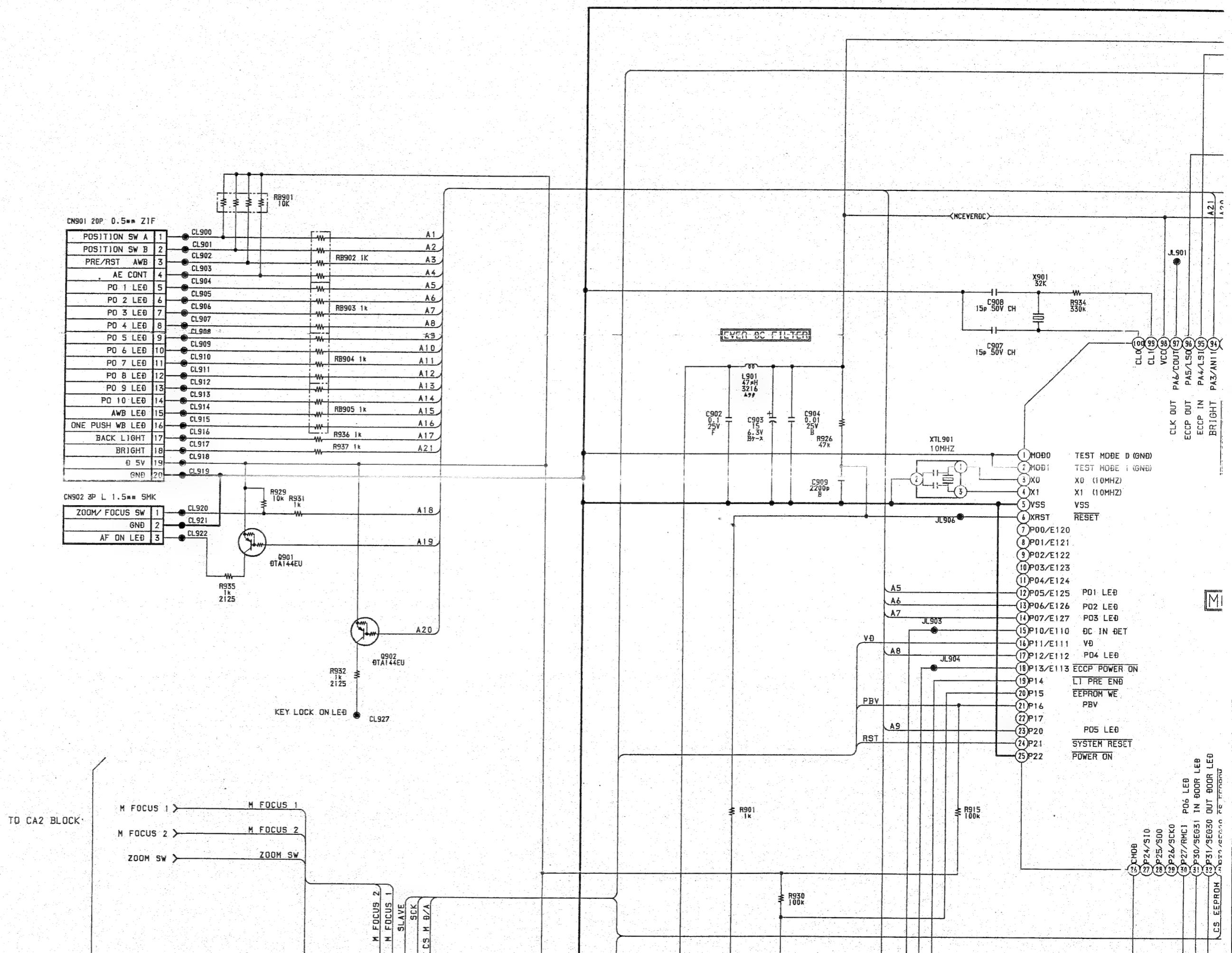
SIDE A

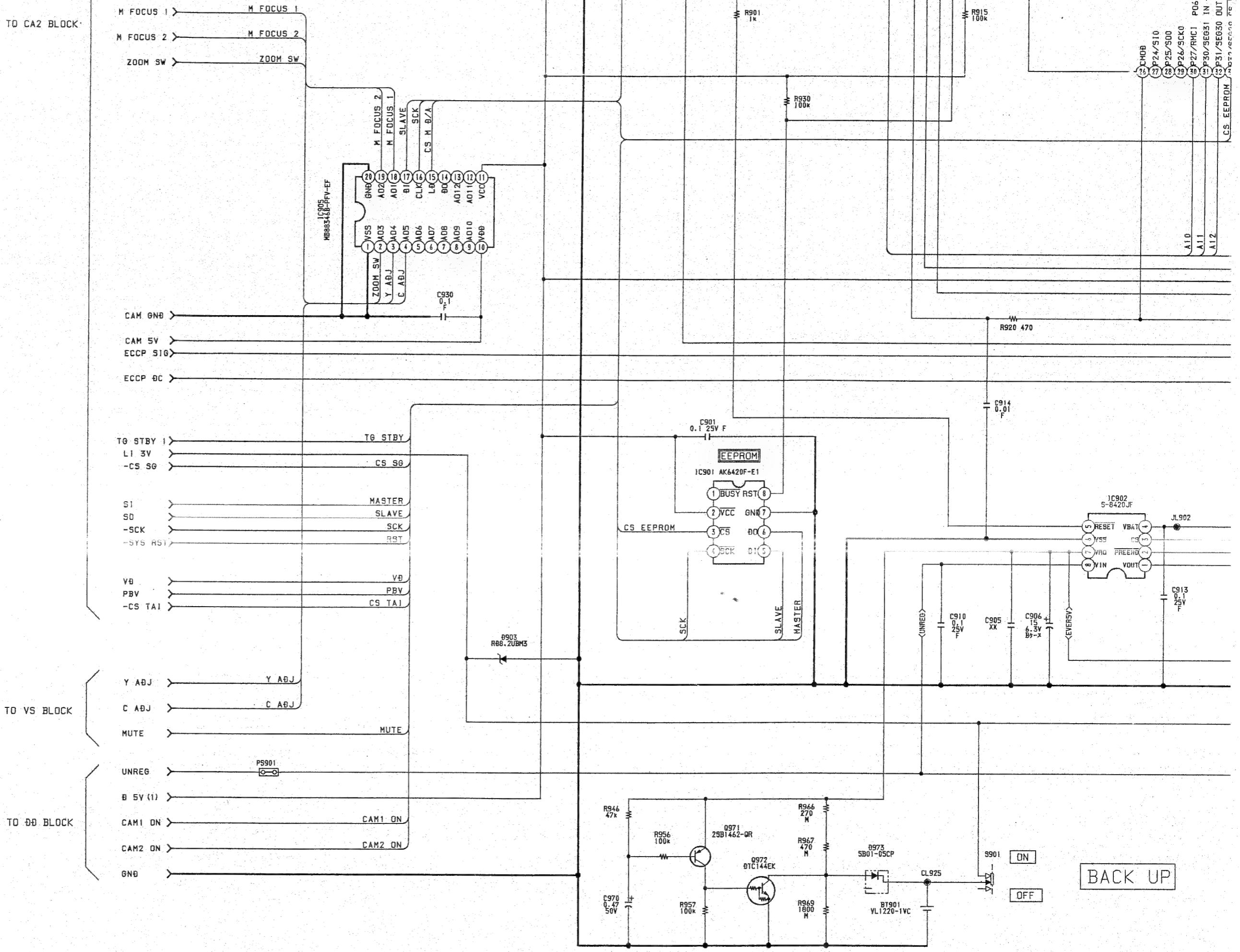


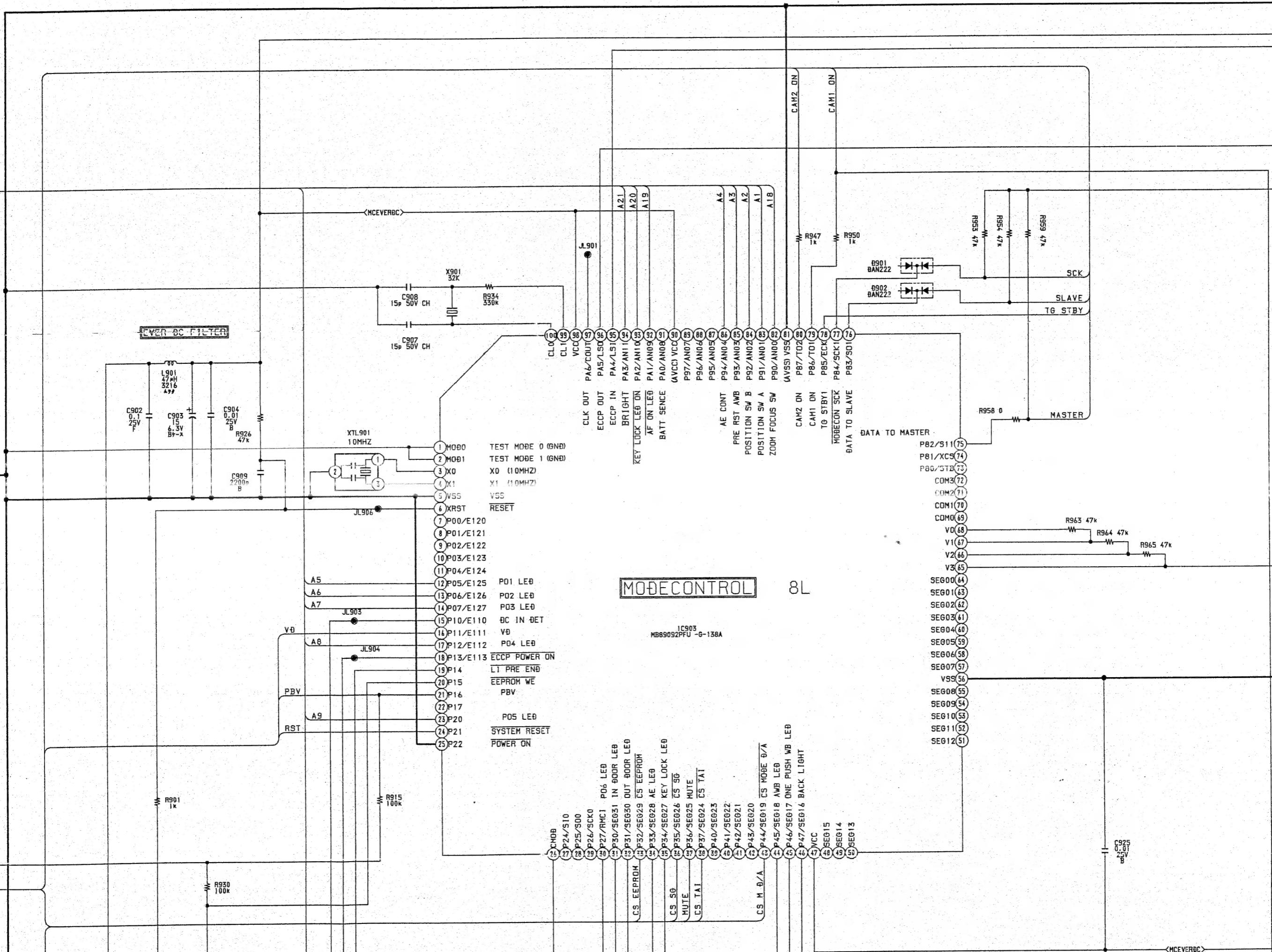
1-649-952 - #2 / 22  
11 21

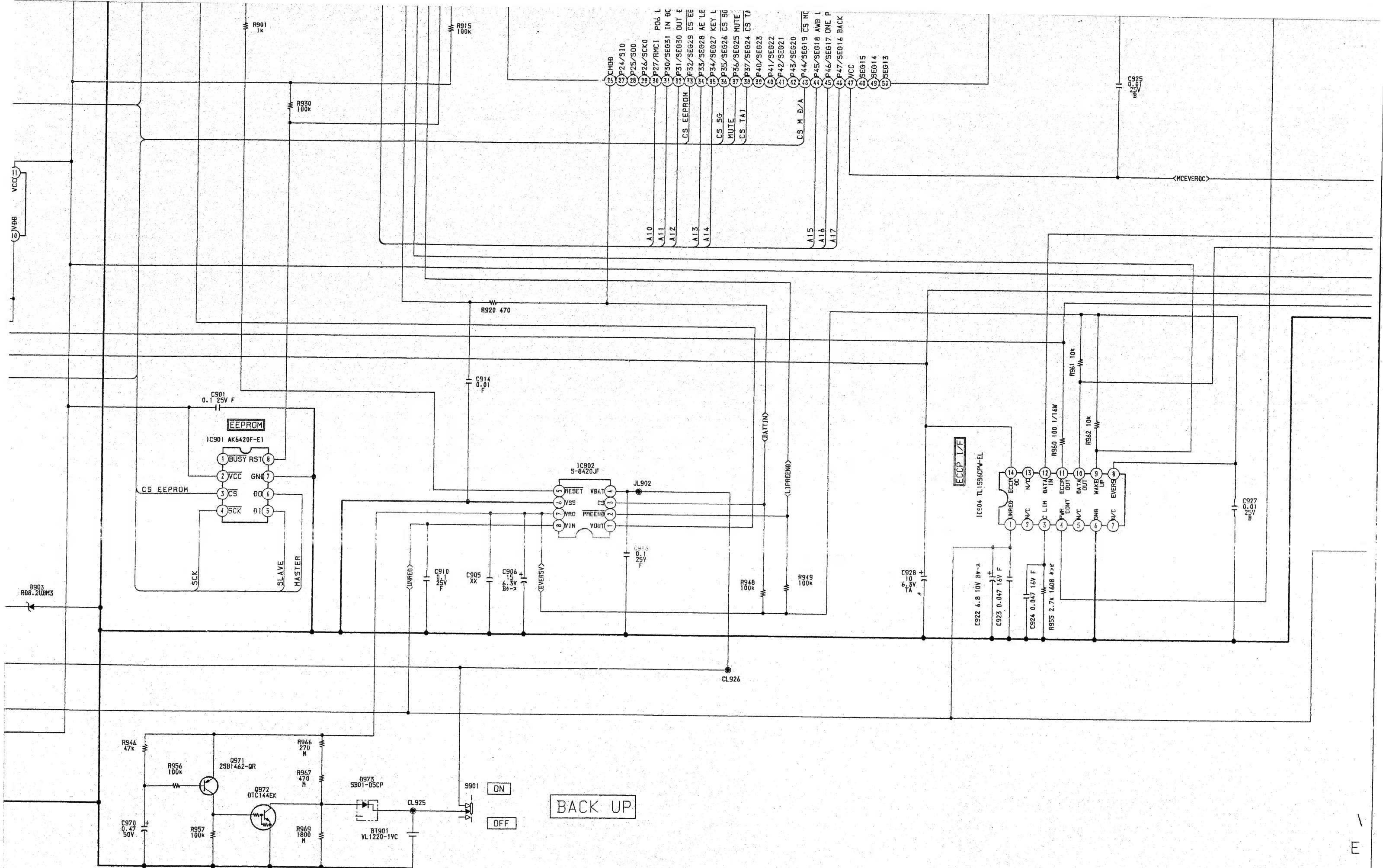
FK-56 / 56P BOARD

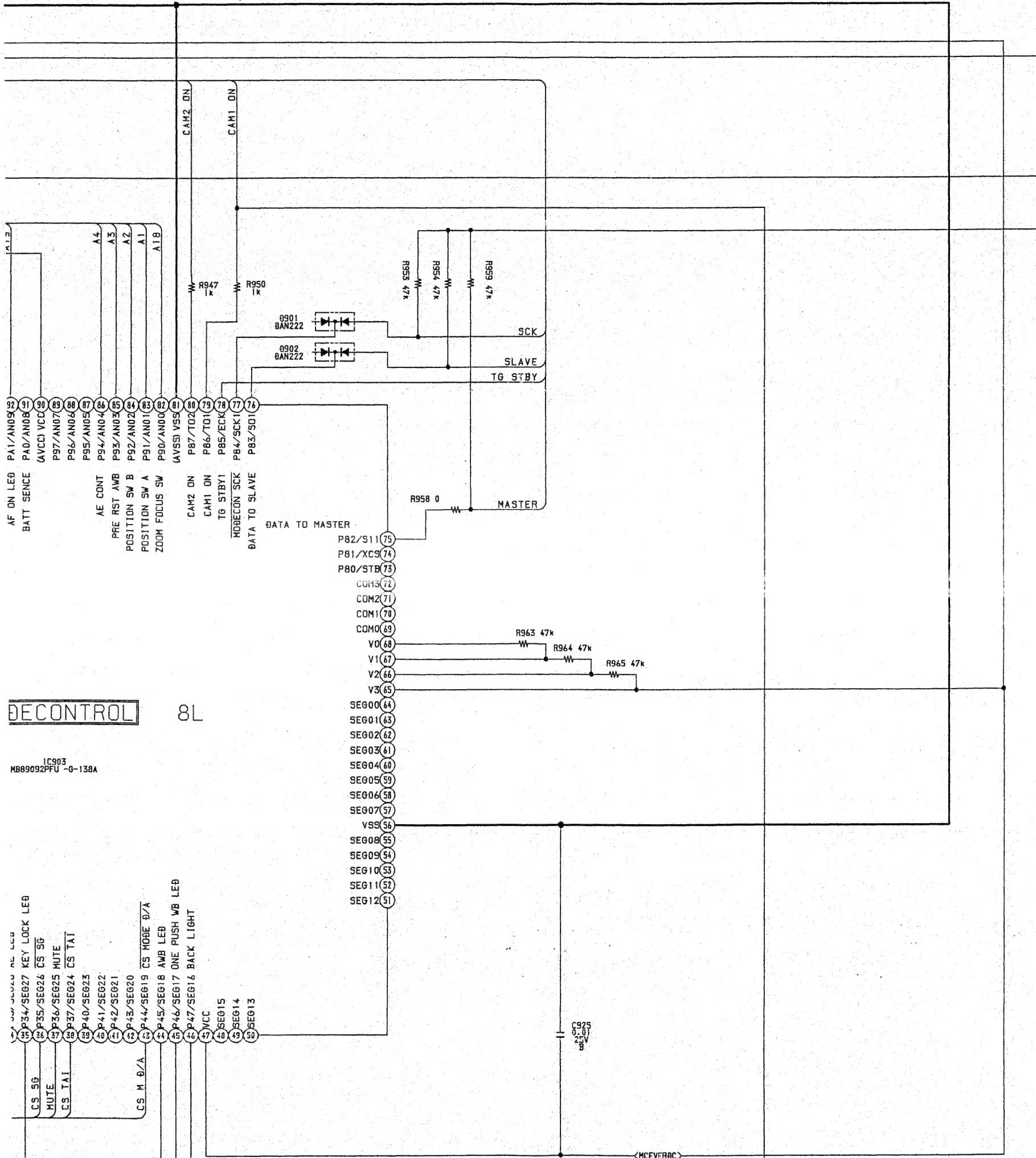
5-4. FK-56 PWB Mounting Diagram

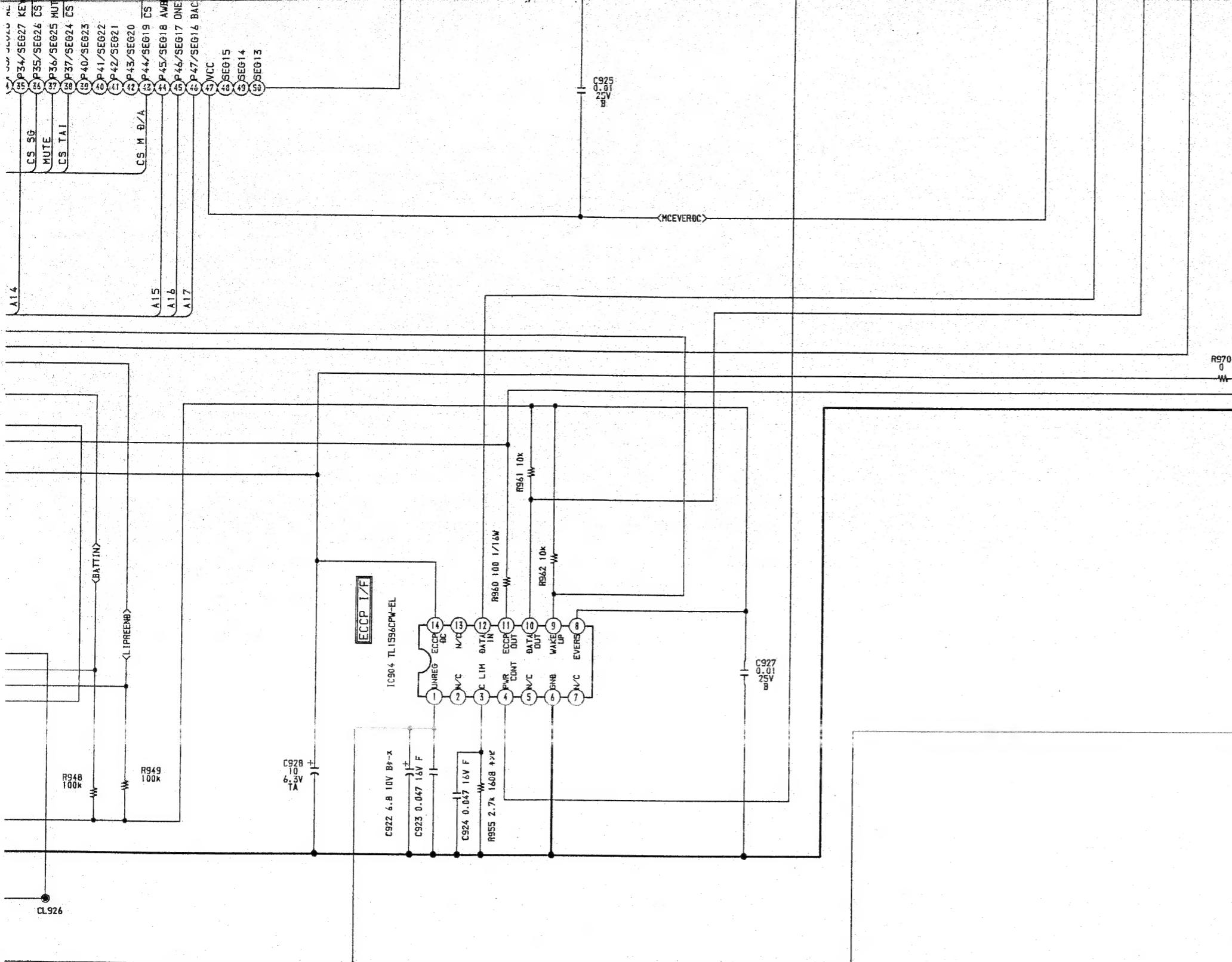












MODE CONTROL BLOCK  
VC-128/128P BOARD (3/5) MC BLOCK  
EVI-310 1-649-950-11 (VC-128)  
EVI-311 1-649-950-21 (VC-128P)

**CONFIDENTIAL**